Studies Weekly Texas Science Grade 4

Studies Weekly Texas Science Grade 4 Executive Summary

Section 1. Science-Related Texas Essential Knowledge and Skills (TEKS) and English Language Proficiency Standards (ELPS) Alignment

Grade	TEKS Student %	TEKS Teacher %	ELPS Student %	ELPS Teacher %
Grade 3	100%	100%	100%	100%
Grade 4	100%	100%	100%	100%
Grade 5	100%	100%	100%	100%

Section 2. Instructional Anchor

- The materials are designed to strategically and systematically integrate scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.
- The materials anchor the learning in phenomena and problems as the key lever for driving learning and student mastery of disciplinary knowledge and skills.

Section 3. Knowledge Coherence

- The materials are designed to build knowledge systematically, coherently, and accurately.
- The materials provide educative components to support teachers' content and coherence knowledge.

Section 4. Productive Struggle

- The materials provide opportunities for students to engage in productive struggle through sensemaking that involves reading, writing, thinking, and acting as scientists and engineers.

Section 5. Evidence-Based Reasoning and Communicating

- The materials promote students' use of evidence to develop, communicate, and evaluate explanations and solutions.
- The materials provide teacher guidance to support student reasoning and communication skills.

Section 6. Progress Monitoring

- The materials include a variety of TEKS-aligned and developmentally appropriate assessment tools.
- The materials include some guidance that explains how to analyze and respond to data from assessment tools.

- The assessments are clear and easy to understand.

Section 7. Supports for All Learners

- The materials provide guidance on fostering connections between home and school.
- The materials include listening, reading, writing, and speaking supports to help Emergent Bilinguals meet grade-level science content expectations.
- The materials include a variety of research-based instructional methods that appeal to a variety of learning interests and needs.
- The materials include guidance, scaffolds, supports, and extensions that maximize student learning potential.

Section 8. Implementation Supports

- The materials include year-long plans with practice and review opportunities that support instruction.
- The materials include classroom implementation support for teachers and administrators.
- The materials provide implementation guidance to meet variability in program design and scheduling.

Section 9. Design Features

- The visual design of materials is clear and easy to understand.
- The materials are intentionally designed to engage and support student learning with the integration of digital technology.
- The digital technology or online components are developmentally and grade-level appropriate and provide support for learning.

Section 10. Additional Information

- The publisher submitted the technology, price, professional learning, and additional language supports.

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Indicator 2.1

Materials are designed to strategically and systematically integrate scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.

1	Materials provide multiple opportunities for students to develop, practice, and demonstrate mastery of grade-level appropriate scientific and engineering practices as outlined in the TEKS.	M
2	Materials provide multiple opportunities to make connections between and within overarching concepts using recurring themes.	M
3	Materials strategically and systematically develop students' content knowledge and skills as appropriate for the concept and grade level as outlined in the TEKS.	M
4	Materials include sufficient opportunities, as outlined in the TEKS, for students to ask questions and plan and conduct classroom, laboratory, and field investigations and to engage in problem-solving to make connections across disciplines and develop an understanding of science concepts.	M

Meets | Score 4/4

The materials meet the criteria for this indicator. Materials are designed to strategically and systematically integrate scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.

Materials provide multiple opportunities for students to develop, practice, and demonstrate mastery of grade-level appropriate scientific and engineering practices as outlined in the TEKS. Materials provide multiple opportunities to make connections between and within overarching concepts using recurring themes. Materials strategically and systematically develop students' content knowledge and skills as appropriate for the concept and grade level as outlined in the TEKS. Materials include sufficient opportunities, as outlined in the TEKS, for students to ask questions and plan and conduct classroom, laboratory, and field investigations and to engage in problem-solving to make connections across disciplines and develop an understanding of science concepts.

Evidence includes but is not limited to:

Materials provide multiple opportunities for students to develop, practice, and demonstrate mastery of grade level appropriate scientific and engineering practices as outlined in the TEKS.

- The TEKS Alignment Citation Table demonstrates how the materials include opportunities for students to engage in SEP through multiple formats across the year. For example, the chart summarizes eight opportunities across the year for students to practice standard 4.1Ai., which calls for students to ask questions, and explain phenomena with appropriate tools and models. Unit 2 introduces SEP 4.1Ai during a collaborative learning activity in which students consider how to classify items and use visual cues to support their reasoning. Students revisit the standard in Units 3, 5, and 17.
- Materials for each unit include a "Standards Coverage Chart" that highlights the opportunities for students to develop, practice, and demonstrate mastery of grade-level appropriate SEP

throughout the unit, as outlined in the TEKS. For example, in the activities in Unit 4, *"Lava Lamp",* students ask questions, define problems, listen actively, and discuss. In subsequent activities, students develop explanations, collect evidence, use mathematics, and analyze data.

- Units alternate between a focus on SEP as students develop, practice, and demonstrate mastery of TEKS concepts within each unit. In Unit 7, "Engineering Design: Conductors and Insulators", students engage with SEP 4.1B "Use scientific practices to plan and conduct descriptive investigations and use engineering practices to design solutions to problems" by designing a way to keep a cup of hot chocolate cool on the outside but hot on the inside using various materials. Students work collaboratively to plan and create a cup insulator design, build a prototype, and test their design. After completion of the unit learning, teachers assess student understanding of the TEKS with questions such as, "What is the purpose of a prototype?"
- Each unit includes multiple opportunities for students to demonstrate their mastery and practice the skills learned in the unit through performances. For example, in Unit 16, "Natural Resources and Properties of Rocks", students have three different methods for formal assessment. In one assessment students complete a unit assessment with various question types from fill-in-the-blank to appropriately utilize vocabulary in context, to analyzing images related to the MOHS scale. Other questions ask students to use evidence from an image to support a claim in a short response about an aquifer. In Unit 19, the materials provide opportunities for students to demonstrate mastery using a performance task. The tasks include real-world scenarios, photos, and tables or graphs for students to demonstrate their understanding of the scientific principles learned during the unit or throughout the year. Unit 19 includes a read-and-respond text which requires students to reason, justify, and summarize information read independently.

Materials provide multiple opportunities to make connections between and within overarching concepts using recurring themes.

- Each Teacher Edition unit includes a section outlining the recurring themes and concepts (RTC) students learn about within the unit and the activities to which they align. For example, in Unit 1 students are introduced to seven RTCs including cause and effect, scale, proportion and quantity, and energy and matter. For example, in Unit 1, the teacher materials state, "Within Unit 1, all Science and Engineering Practices and Recurring Themes and Concepts are introduced as foundational concepts." Subsequent units focus on one RTC focus per unit as well as spiraling into 5 to 7 other relevant RTC.
- Weekly Student Readers indicate the specific RTC an activity focuses on. For example, in the Student Edition for Week 18, activities contain an RTC about systems and system models as students learn about evaporation through a heat lamp investigation.
- Materials for each unit include a Standards Coverage Chart highlighting RTC. For example, in Unit 2, "The Junk Drawer", RTC stability and change are found in Activity 5, where students explain how factors or conditions impact stability and change in objects, organisms, and systems.
- Weekly lesson plans include opportunities for collaborative learning where students make connections within overarching concepts using the recurring themes. For example, in Unit 2 "The Junk Drawer", students use prior knowledge that a solid has a definite shape to classify items as a solid. Students use the *Junk Drawer Recording Chart* in subsequent activities in the unit.
- For most units, the weekly teacher documents provide a section "Unit Transition". Teachers highlight the connection to previous units of study. For example, in Unit 3, "Mixtures and

Solutions”, teachers remind students that in the previous unit, they classified and described matter according to observable physical properties and that in this unit, students will investigate what happens when two types of matter are combined. Students then engage in direct experience of a related phenomenon by placing M&Ms into a beaker of warm water and using a magnifying glass to observe what happens. Teachers generate thinking and questions about the activity using the Phenomenon Questioning Technique before beginning the new unit.

Materials strategically and systematically develop students’ content knowledge and skills as appropriate for the concept and grade level as outlined in the TEKS.

- The “Vertical and Horizontal Alignment” document shows the progression of each TEKS from grade to grade increasing in difficulty. For example, the strand “Force, Motion, and Energy” indicates that in grade 4, the student investigates and identifies the transfer of energy by objects in motion, waves in water, and sound after the students plan and conduct investigations that demonstrate how the speed of an object is related to its mechanical energy in grade 3. Students move on to demonstrate and explain how light travels in a straight line and can be reflected, refracted, or absorbed, in grade 5.
- Each unit provides a *Teacher Background* podcast that outlines content knowledge and skills from grade 3 and explains how the current unit builds on students' prior knowledge. For example, Unit 3 “Mixtures and Solutions”, explains that in third-grade students learned that materials can be combined and explains how the standard expands in grade 4 to explain that matter can be combined.
- In the” Training and Resource” section, the webinar *What's New- Explore Science 3-5* explains how the materials support the teacher with teaching science like an expert. The webinar explains how the materials intentionally align best practices for improving science education based on the “National Science Report” findings from 2012.
- Materials list the standards which support the nature of scientific work to develop science literacy in students. The materials provide a more equitable approach to student learning by not basing learning on the lecture or teacher-centered instruction, but by grounding learning in student ideas, and student contribution, and giving opportunities for students to connect to their own life experiences. When discussing the methods of instruction in the webinar, the presenter explains how it integrates strategies that promote student demonstration of learning versus just recall or understanding levels of learning.
- On the Teacher Edition tab, teachers access a “Correlation to the TEKS and ELPS” document that reflects how concepts and skills are taught and built over the units of instruction. For example, 4.1Ai is taught within Unit 2, “Form a Hypothesis”, and in Unit 6, “All Sections”.

Materials include sufficient opportunities, as outlined in the TEKS, for students to ask questions and plan and conduct classroom, laboratory, and field investigations and to engage in problem solving to make connections across disciplines and develop an understanding of science concepts.

- The *Texas Science Vertical and Horizontal Alignments* teacher resource, outlines how the SEP are integrated across the academic year providing sufficient opportunities to ask questions and plan and conduct classroom, laboratory, and field investigations, and engage in problem-solving. For example, in grade 4, students begin Unit 2 by collecting observations and measurements as evidence. In Unit 3 the students ask questions based on observations or information from the text, phenomena, models, or investigations. In Unit 4 students develop explanations supported

by data and models. Then, in Unit 12 students develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem.

- Unit printables included in the Teacher Edition provide support for teachers to facilitate students asking questions about phenomenons that are used to develop investigations throughout the unit. For example, the printable includes the following sections: *"Produce Questions", "Collect Questions", and "Create a Student-Driven Question Board".*
- Students plan and conduct investigations in most units of the materials. Consistent procedures and tools in the materials facilitate student investigation of science concepts. Concepts align with the TEKS and for each unit, students follow a consistent procedure to investigate questions such as "Do some objects fall faster than other objects?" Because these procedures and tools are consistent, students have abundant opportunities to conduct investigations as outlined in the TEKS.

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Indicator 2.2

Materials anchor the learning in phenomena and problems as the key lever for driving learning and student mastery of disciplinary knowledge and skills.

1	Materials embed phenomena and problems across lessons to support students in constructing, building, and developing knowledge through authentic application and performance of scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.	M
2	Materials intentionally leverage students' prior knowledge and experiences related to phenomena and engineering problems.	M
3	Materials clearly outline for the teacher the scientific concepts and goals behind each phenomenon and engineering problem.	M

Meets | Score 4/4

The materials meet the criteria for this indicator. Materials anchor the learning in phenomena and problems as the key lever for driving learning and student mastery of disciplinary knowledge and skills.

Materials embed phenomena and problems across lessons to support students in constructing, building, and developing knowledge through authentic application and performance of scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS. Materials intentionally leverage students' prior knowledge and experiences related to phenomena and engineering problems. Materials clearly outline for the teacher the scientific concepts and goals behind each phenomenon and engineering problem.

Evidence includes but is not limited to:

Materials embed phenomena and problems across lessons to support students in constructing, building, and developing knowledge through authentic application and performance of scientific and engineering practices, recurring themes and concepts, and grade level content as outlined in the TEKS.

- The materials build and develop knowledge through authentic application. In Unit 3, students begin by reading the phenomenon, "A plant starts to sprout on a paper towel before it is placed in direct and continues to grow." Students begin this study with a short video, a graphic text with a dialogue of students encountering the phenomenon, and an activity for students to develop a guiding question for their investigation and hypothesize about the cause of the phenomenon.
- The "Texas Science Weekly Teacher Guide" explains how teachers can use the resources to support student learning, including a rubric for phenomenon introduction and a phenomenon explanation. The introduction resource describes the inclusion of phenomena by saying, "Each phenomenon anchors the unit by providing relevance and motivation to study the science concepts of the unit." The guide goes on to explain how this helps learning by being applicable and accessible to all students. The phenomena may be a student experience students can relate to, a demonstration, or a video.

- Units throughout the materials embed TEKS-aligned phenomena through a comic and lesson activity as teachers introduce the concepts for the week. For example, in Unit 10, “Phases of the Moon”, students read a phenomenon comic about why the moon is a different shape from what it looked like two weeks ago in a phone picture. The students discuss their thoughts and formulate questions as the teacher records them on a Student-Driven Question Board. Each phenomenon comic relates science concepts to a real-life situation that students have encountered.
- The Student Edition opens each unit with an introduction to the phenomenon through a comic strip and/or video presentation. The various activities provide students with opportunities to investigate the phenomenon. The unit culminates with an opportunity for students to reflect and discuss their learning about the phenomenon presented at the beginning of the unit. For example, in Unit 2, “Hidden Treasures,” the comic strip introduces the phenomenon through a scenario where kids are finding treasures at the beach using a metal detector. Students ask questions, plan, and investigate the different physical properties of matter. The students also use the RTC of cause and effect to test the magnetism of objects and then explain the phenomenon by describing the properties of the items the kids found at the beach. This is also seen in Unit 4, “Lava Lamps.” The phenomenon comic strip shows how a lava lamp fizzes and swirls. The materials include a text for students to read and use as evidence to answer questions and investigations about Matter in Mixtures, Matter in Solutions, and Matter That Changes States.

Materials intentionally leverage students’ prior knowledge and experiences related to phenomena and engineering problems.

- The materials guide students to connect to prior knowledge and experiences related to phenomena and engineering problems. In Unit 9, the Student Edition connects patterns in the changes of seasons, such as changes in temperature and length of daylight to their own experiences. The students view a comic about a student named Aleki who notices that during the summer, it is light and warm outside after dinner when she is playing basketball outside with friends, but as it turns to fall, it gets darker and colder earlier. This scenario connects with common experiences for many students in Texas.
- In the online Teacher Edition section of the “Introduction to Texas Science Weekly” PDF, the document explains how teachers can use the resources to support student learning. The introduction resource describes the inclusion of phenomena by saying, "Each phenomenon anchors the unit by providing relevance and motivation to study the science concepts of the unit." The guide explains how this helps learning by being applicable and accessible to all students. The phenomena may be a student experience students can relate to, a demonstration, or a video.
- Teacher questioning encourages students to think about and build upon prior knowledge as they explore phenomena. In Unit 10, “Phases of the Moon,” the teacher asks, "What causes the moon to appear differently? How many shapes does it have?" encouraging students to think back to when they have observed the moon.
- Teacher questioning encourages students to think about and build upon prior knowledge as they solve engineering problems. In Unit 12, “Engineering Design: Weathering, Erosion and Deposition”, teachers refer to a model of a broken sidewalk and ask, "What causes the sidewalk to break down? What causes the broken sidewalk pieces to move farther away from where they were broken?" as students begin to consider how earth changes happen in a place they often interact with - sidewalks.

- The Student Edition introduces each unit using a comic strip and scenarios students can relate to. The scenarios authentically engage students by motivating them to develop and apply scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS. For example, in the unit “Engineering Design: Producers Make Food”, a girl is digging a hole to plant a seed that has sprouted in a paper towel when a boy approaches and questions how a seed can grow in a paper towel. Students can relate to this scenario as they have learned about the life cycle of a plant in second grade and also have planted or seen someone plant a seed in a garden.
- The unit lesson guides include the unit objectives that indicate the TEKS, SEP, and RTC that will be covered throughout the unit. The materials include lesson plans that help the teacher guide the students to make personal connections to the phenomenon comic strip by sharing prior knowledge and experiences. Students ask questions and share what they know.

Materials clearly outline for the teacher the scientific concepts and goals behind each phenomenon and engineering problem.

- Unit teacher editions begin by explaining the phenomenon for the week and unit and how it connects to real-world situations in the student materials. The “Student Support Resources” portion of the “Teacher Unit Edition” illustrates how media helps students understand the phenomenon. For example, “ Life Cycles: Phenomenon Home Letter” includes a guide for teacher communication teachers give to parents to help them understand how to reinforce concepts with students outside of school.
- Unit teacher editions include success criteria and formative assessments aligned to the scientific concepts. For example, in Unit 2, the teacher edition explains how the teacher can use the Think Aloud Model to guide students to consider the similarities and differences of materials used in playgrounds and why they are important. The script explains, "On the playground, I noticed metal. From the phenomenon statement, I read that the new playground would use new materials. I asked myself, 'Why do playgrounds use metal in some areas? Why would metal need to be replaced?'" The teacher script prepares the teacher with questions they can use to help students who are struggling to generate guiding questions, such as, "Why are playgrounds built from some materials and not others?"
- The “Success Criteria” chart found at the beginning of every unit in the Teacher Edition outlines the goals behind each phenomenon and engineering problem. Teacher resources also include rubrics for phenomenon introduction and a phenomenon explanation. Unit materials contain a chart outlining concepts and success criteria goals for the phenomena being studied. In Unit 9, “We Are In Orbit!”, concepts include Scale, Proportion and Quantity, and Systems and System Models. Teachers focus on success criteria goals such as, "I can use a model to explain the orbit of the Sun, Earth, and Moon system."
- In the unit/weekly “Teacher Guidance” document for most units, the materials contain a chart outlining concepts and success criteria goals for engineering problems being studied. In Unit 8, “Engineering Design: The Fastest Car,” concepts include Cause and Effect, Systems and Models, and Structure and Function. Teachers focus on success criteria goals such as, "I can identify ways to improve my prototype.
- Each unit provides a *Teacher Background Information Podcas*t that explains how the unit builds on students' prior knowledge and outlines the content of the unit. For example, in Unit 17, “Engineering Design: Producers Make Food,” the podcasts explain how plants use the sun’s energy to produce their own food and that in an ecosystem, energy is transferred by animals eating other animals or plants.

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Indicator 3.1

Materials are designed to build knowledge systematically, coherently, and accurately.

1	Materials are vertically aligned and designed for students to build and connect their knowledge and skills within and across units and grade levels.	M
2	Materials are intentionally sequenced to scaffold learning in a way that allows for increasingly deeper conceptual understanding.	M
3	Materials clearly and accurately present grade-level-specific core concepts, recurring themes and concepts, and science and engineering practices.	M
4	Mastery requirements of the materials are within the boundaries of the main concepts of the grade level.	M

Meets| Score 6/6

The materials meet the criteria for this indicator. Materials are designed to build knowledge systematically, coherently, and accurately.

Materials are vertically aligned and designed for students to build and connect their knowledge and skills within and across units and grade levels. Materials are intentionally sequenced to scaffold learning in a way that allows for increasingly deeper conceptual understanding. Materials clearly and accurately present grade-level-specific core concepts, recurring themes and concepts, and science and engineering practices. Mastery requirements of the materials are within the boundaries of the main concepts of the grade level.

Evidence includes but is not limited to:

Materials are vertically aligned and designed for students to build and connect their knowledge and skills within and across units and grade levels.

- Materials include a “Vertical and Horizontal Alignment” document for the teacher to better understand how the skills students are learning to connect to other grade-level learning standards. For example, in grade 3, when studying Force, Motion, and Energy, the “Vertical Alignment Resource” explains that students should know "The nature of forces and the patterns of their interactions." The materials explain that in Unit 5, students engage in the 3.7A standard as they "Demonstrate and describe forces acting on an object in contact or at a distance, including magnetism, gravity, and pushes and pulls." The portions of the standard that are new for the grade level are bolded for reference. In grade 2, the standard requires students to explain but not demonstrate. Grade 3 students focus on the push against one another and how the shape may change from this force. In grade 4, the standard requires students to plan, conduct, and describe investigations about forces, and this expands to include friction and an additional force. By grade 5 students, "Investigate and explain how equal and unequal forces acting on an object cause patterns of motion and transfer of energy."
- The “Vertical Alignment” section of the “Vertical and Horizontal Alignment” document shows how concepts taught in the materials are divided into Strands that mirror those in the TEKS. Units are listed under grade levels, illustrating the progression of standards over time. For

example, in grade 4, Unit 3 includes TEKS 4.6D, in which students investigate and compare mixtures and solutions composed of liquid and solid matter. This standard builds on grade 3 TEKS 3.6D, in which students demonstrate that materials can be combined based on their physical properties to create or modify objects, such as adding clay to sand to make a stronger brick, and progresses in grade 5 to TEKS 5.6B, in which students demonstrate and explain that some mixtures maintain physical properties of their substances, such as iron filings and water. The document also explains what skills spiral in the unit, important terms students are focusing on in the grade level, and the SEP and/or RTC for the strand.

- The materials are vertically aligned and designed for students to build and connect their knowledge and skills within and across units and grade levels. For example, Unit 7 includes an optional "Prior Knowledge" article, and Unit 8 includes the *Teacher Background Information* podcast reviewing that in grade 3, students identified everyday examples of mechanical, light, sound, and thermal energy. The podcast shares the definition and examples of each topic and shares the new vocabulary in the explanation of the unit.
- The "Vertical and Horizontal Alignment" document shows the progression of each TEKS from grade to grade, increasing in difficulty. For example, the strand Force, Motion, and Energy indicate that in grade 4, the student investigates and identifies the transfer of energy by objects in motion, waves in water, and sound, building upon grade 3 focus on planning and conducting investigations that demonstrate how the speed of an object is related to its mechanical energy. Students move on to demonstrate and explain how light travels in a straight line and can be reflected, refracted, or absorbed in grade 5.

Materials are intentionally sequenced to scaffold learning in a way that allows for increasingly deeper conceptual understanding.

- Grade 4 materials scaffold learning in a way that allows for increasing conceptual understanding within each strand. For example, the "Vertical and Horizontal Alignment" document follows the horizontal alignment of the TEKS. In the strand Force, Motion, and Energy, Unit 6, TEKS 4.8A materials have students investigate and identify the transfer of energy by objects in motion, waves in water, and sound. In Unit 7, TEKS 4.8B materials provide a lesson in which students demonstrate and describe how electrical energy travels in a closed path that can produce light and thermal energy. Materials then provide additional scaffolding by students' thinking from more general forms of energy to a specific form of energy that increases their depth of knowledge of their everyday lives as they use electrical circuits.
- Unit documents provide a "Transition" section at the beginning of and/or at the end of each unit that connects students' previous learning to current learning objectives with increasing difficulty. For example, in Unit 21, students learn to describe and classify matter using observable physical properties. In Unit 3, students investigate and compare what happens when certain types of matter are mixed together. In Unit 4, materials present lessons focusing on the conservation of matter when making mixtures.
- Units begin with a task to activate students' prior knowledge or to build background information. For example, in Unit 18, the teacher first engages students with a vocabulary review activity and a prior knowledge article, "Physical Characteristics of Organisms." The vocabulary review includes the terms *trait, offspring, inherit,* and *acquired trait.* After reading the article, the students draw a picture that correlates with the word and may review the Spanish translation of the term if necessary.
- The materials include sequencing to scaffold learning. For example, the student resource materials start with a visual representation of the phenomenon and then break down the

concepts into chunks that build on the previous activity. Unit 9, Activity 2, "Temperature: Current Season," includes an outdoor observation before students answer analysis questions using the information they have to support their answers. Activity 3, Temperature: All Seasons, has the students thinking about other seasons and charting what they know about the seasons before they research and chart the local temperature.

Materials clearly and accurately present grade level specific core concepts, recurring themes and concepts, and science and engineering practices.

- The units follow a repeated pattern for instruction aligned to the 5E Model. Each unit begins with the Engage component where after previewing the topic and vocabulary, students explore a specific RTC based on phenomena. On the following days, students engage in the Explore and Elaborate steps and the 5E cycle concludes with an Explanation and an additional optional elaboration activity based on student needs.
- The materials include a clear and concise grade level scope and sequence document where the teacher gains an understanding of the sequence students will engage with all grade level concepts, SEP, and RTC. For example, in grade 4, the strand Organisms and Environments is spiraled into the RTC patterns, cycles, systems, and relationships within environments during Units 17-19. Materials continue the strand Organisms and Environments with lessons focusing on the changes organisms undergo and the structures which help them survive in their environments during Units 20-21.
- Students access articles within the student activity pages that add to the core concepts focused on that week. For example, in Unit 15, Activity 4, students read an article about Texas oil discoveries and their impact, adding more depth and detail to the standard for the week, TEKS 4.11B.
- In grade 4, student materials present accurate information about matter, including that matter can be combined to make new substances like trail mix, salt water, and soda. Students learn that combinations of two or more substances are called mixtures or solutions and that a solution is a type of mixture. Materials address a common misconception that mixtures are always solids and solutions are always liquids.

Mastery requirements of the materials are within the boundaries of the main concepts of the grade level.

- The "Vertical and Horizontal Alignment" document clearly explains the mastery requirements of the student lessons, which are within the boundaries of the main concepts of the grade level. The document provides teachers with the learning targets and how they progress across the year. The materials content strands mirror the TEKS with the standard and units in which the TEKS are taught. For example, in Units 19 and 20, students learn how organisms undergo similar life processes and have structures that function to help them survive within their environments. The alignment document illustrates the connection to TEKS and how they aligned with student goals for students to explore and explain how external structures and functions of animals help them survive and explore, illustrate, and compare life cycles in organisms.
- Mastery requirements of the materials fall within the boundaries of the main concepts of the grade level. For example, in Unit 5, Activity 2, students classify and describe matter based on patterns of physical states. To demonstrate mastery, students complete an "Exit Ticket" using evidence from the day's activity to classify and describe lemons and lemonade based on their physical properties using a written response but may include drawings, tables, and diagrams.

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- Each unit lesson plan includes success criteria for the unit, which connect to each component of the unit. For example, in Unit 18, students engage in prior knowledge activation and phenomenon introductions. In the following lessons, students explore interconnected food chains, food webs, ecosystems, and roles. Students then complete a phenomenon explanation as they evaluate the overall weekly learning. This week is part of a larger concept of multiple units which explore the organisms and environments; thus, the students experience the explain portion during an upcoming unit.
- Mastery requirements of the materials are within the boundaries of the main concepts of the grade level. For example, in Unit 10, Activity 5, Phenomenon Explanation, students select a month and complete the moon cycle for that moon. Students then make personal connections to the calendar by adding three days of importance to them and answering questions based on their data chart.

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Indicator 3.2

Materials provide educative components to support teachers' content and knowledge coherence.

1	Materials support teachers in understanding the horizontal and vertical alignment guiding the development of grade-level content, recurring themes and concepts, and scientific and engineering practices.	M
2	Materials contain explanations and examples of science concepts, including grade-level misconceptions to support the teacher's subject knowledge and recognition of barriers to student conceptual development as outlined in the TEKS.	M
3	Materials explain the intent and purpose of the instructional design of the program.	M

Meets | Score 6/6

The materials meet the criteria for this indicator. Materials provide educative components to support teachers' content and knowledge coherence.

Materials support teachers in understanding the horizontal and vertical alignment guiding the development of grade-level content, recurring themes and concepts (RTC), and scientific and engineering practices (SEP). Materials contain explanations and examples of science concepts, including grade-level misconceptions, to support the teacher's subject knowledge and recognition of barriers to student conceptual development as outlined in the TEKS. Materials explain the intent and purpose of the instructional design of the program.

Evidence includes but is not limited to:

Materials support teachers in understanding the horizontal and vertical alignment guiding the development of grade level content, recurring themes and concepts, and scientific and engineering practices.

- The materials in grade 4 include a horizontal alignment, allowing teachers to see the progression of the TEKS, including the RTC and SEP, throughout the units within the grade level. For example, in grade 4, the Matter and Energy strand states that the student knows that matter has measurable physical properties that determine how matter is identified, classified, changed, and used. The learning begins in Unit 2 when students classify and describe matter. The learning progression continues in Unit 3 when students investigate and compare a variety of mixtures, including solutions. The learning culminates with Unit 4, when students demonstrate that matter is conserved when mixtures are formed.
- Materials support teachers in understanding the horizontal and vertical alignment guiding the development of grade-level content, RTC, and SEP. For example, *in* Unit 11, The Water Cycle, the *Topic Background Podcast* includes scaffolded teacher information and a content summary supporting a deep understanding in order to teach this unit.
- In the "Horizontal Alignment" document, the materials clearly explain the mastery requirements of the student lessons, which are within the boundaries of the main concepts of the grade level. For example, in grade 4, students learn to describe patterns, cycles, systems, and relationships within environments during Units 17, 18, and 19. The chart demonstrates the connection to

TEKS 4.12A, B, and C, with aligned students goals for students to investigate and explain how most producers can make their own food using sunlight, water, and carbon dioxide, describe the cycling of matter and flow of energy through food webs, and identify and describe past environments based on fossil evidence.

- The “Vertical and Horizontal Alignment” document includes information about how concepts taught in the materials are divided into strands that mirror those in the TEKS. TEKS and units are listed under grade levels to illustrate the progression of standards over time. For example, in grade 5, Unit 4 includes TEKS 5.6B. Students demonstrate and explain that some mixtures maintain the physical properties of their substances, such as iron filings and water, and investigate and compare mixtures and solutions composed of liquid and solid matter. This standard builds on grade 4 TEKS 4.6B, in which students investigate and compare mixtures and solutions composed of liquid and solid matter.

Materials contain explanations and examples of science concepts, including grade level misconceptions to support the teacher's subject knowledge and recognition of barriers to student conceptual development as outlined in the TEKS.

- The materials contain explanations and examples of science concepts and misconceptions to support the teacher. For example, in Unit 11, the “Teacher Note” provides guidance to teachers to avoid correcting students' wrong ideas when they first start learning. Instead, let the students talk and encourage them to change their ideas as they learn new things.
- The unit lesson plan provides the Standards Coverage chart for the unit and includes a section that prepares the teacher to understand common misconceptions about the topic. For example, in Unit 21, Physical Characteristics of Organisms, the teacher prepares to support the following student misconceptions, "Offspring get all their traits from only one parent,” or “Offspring look just like their parents."
- The materials include a teacher resource, “Common Misconceptions” in the unit, and weekly guidance documents to help recognize possible barriers to student learning. For example, Unit 15, Energy Use and Conservation, references a common student misconception that objects that don't use electricity or fuel do not need energy resources.
- After each “Success Criteria” section, the unit documents include Lesson Guides providing support for teacher facilitation of the activities. The Standards Coverage Chart includes a “Misconception” section to guide the teacher on misconceptions to clarify.

Materials explain the intent and purpose of the instructional design of the program.

- The materials explain the intent and purpose of the instructional design of the program. For example, in the *What's New-Explore Science 3-5 National Webinar*, the speaker explains how the framework of the curriculum and the 5E model helps teachers guide students through the concepts, shifting from direct instruction toward inquiry.
- The Teacher Edition includes a *Science Weekly Grades 2-5* resource to gain an understanding of the intent and purpose of the instructional design of the materials. The document provides an understanding of how the materials help students gain an understanding of science content while integrating Reading/Language Arts (RLA) and math standards. The guide explains the structure of the curriculum and student edition weekly readers, which support the 5E model of instruction. The introduction guide highlights other benefits of the instructional materials, including three-dimensional learning with SEP, RTC, and TEKS integration into science lessons and assessments.

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The Teacher Edition Publication Resources section includes the document *Texas Science: 2nd-5th Grades,* providing a detailed explanation of the intent and purposes of the instructional design of the materials. For example, in the section “Additional Highlights, Instructional Design,” teachers access information including but not limited to the following: "Texas Science is built upon the principles of the Framework for K-12 Science Education, published by the National Research Council. This curriculum supports Three-Dimensional Learning. 3D Learning means that the Scientific and Engineering Practices, Recurring Themes and Concepts, and TEKS content are integrated into lesson plans when teaching science." The materials contain further details about formulating hypotheses, standards coverage, and student-led inquiry are integrated into the materials. Additionally, the *Core Components Description* document describes each component of the Texas Science program.

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Indicator 4.1

Materials provide opportunities for students to engage in productive struggle through sensemaking that involves reading, writing, thinking, and acting as scientists and engineers.

1	Materials consistently support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers.	M
2	Materials provide multiple opportunities for students to engage with grade-level appropriate scientific texts to gather evidence and develop an understanding of concepts.	M
3	Materials provide multiple opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying an understanding of scientific concepts.	M
4	Materials support students to act as scientists and engineers who can learn from engaging in phenomena and engineering design processes, make sense of concepts, and productively struggle.	M

Meets | Score 4/4

The materials meet the criteria for this indicator. Materials provide opportunities for students to engage in productive struggle through sensemaking that involves reading, writing, thinking, and acting as scientists and engineers.

Materials consistently support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers. Materials provide multiple opportunities for students to engage with grade-level appropriate scientific texts to gather evidence and develop an understanding of concepts. Materials provide multiple opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying an understanding of scientific concepts. Materials support students to act as scientists and engineers who can learn from engaging in phenomena and engineering design processes, make sense of concepts, and productively struggle.

Evidence includes but is not limited to:

Materials consistently support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers.

- The materials support students' meaningful sensemaking through various modalities with the integration of the 5E Model and Student-Driven Inquiry. In grade 4, Unit 6, students investigate and identify the transfer of energy by sound by observing cause-and-effect relationships. The lesson begins with student-driven inquiry using a ringing bell and asking students to consider how the sound made it to their ears. Students discuss the prompt with a partner, record their ideas on a written model, and share their visual model. Students then work with a small group to investigate sound and discuss their results through whole group discussion. Students read to learn more about the topic of the transfer of energy and vibrations and revise their visual models.
- In Unit 1, Activity 1, *Who Are Scientists and Engineers?* the materials provide resources for students to understand sensemaking as a goal of science. Students listen to a text explaining a definition of sensemaking, including ideas that scientists are curious, explore the world around

them through investigations, are inquisitive, and want to learn more. Students complete sentence stems, open response questions, and complete tasks such as, "Draw a picture of yourself as a specific type of scientist or engineer."

- Materials include “Extended Reading: TEKS Explained” sections for each unit, providing student-friendly explanations of the TEKS through a real-world investigation or simulation examples. For example, Unit 4, *Lava Lamps,* “TEKS Explained,” explores the conservation of matter by creating a water and oil mixture.
- The material supports students' sensemaking through writing as scientists and engineers. For example, in Unit 5, *Forces,* the “Phenomenon Video” includes people playing football and explains that "football is a contact sport." The video shows several examples of different types of contact in football. The material then guides students into producing questions using the Phenomenon Questions Technique.

Materials provide multiple opportunities for students to engage with grade level appropriate scientific texts to gather evidence and develop an understanding of concepts.

- Materials provide multiple opportunities for students to engage with the grade-level appropriate scientific text to gather evidence and develop an understanding of concepts. For example, in Unit 14, Activity 2, *Nonrenewable Resources and Oil Investigation*, the material directs students to read an article, *“What is Coal?”* and identify cause-and-effect relationships. Students then use the information to complete a chart and answer questions including, "Explain: Do you think electricity companies should use coal to produce electricity? Support your explanation by including the advantages and/or disadvantages of using this resource."
- Materials provide multiple opportunities for students to engage with grade-level appropriate scientific text to gather evidence and develop an understanding of concepts. For each unit, students read and listen to texts related to the focus TEKS presented in an introductory comic about a natural phenomenon. In Unit 11, *The Water Cycle, s*tudents describe and illustrate the continuous movement of water through the water cycle and explain the Sun’s role as the major energy source in the process. In Unit 11, Activity 2, students read an article, “Evaporation,” and view a diagram explaining why evaporation occurs. Students use evidence from the article to explain why the amount of water in a cup decreases on a hot, sunny day. Students further develop their knowledge of the water cycle by reading the articles “Condensation,” “Precipitation,” and “Collection.” Each article provides diagrams, and students answer related questions as they learn more details about each part of the cycle.
- Materials provide opportunities for students to engage in research by obtaining information from multiple sources throughout the investigation activities and/or through optional extension activities. For example, in Unit 18, students complete a plant investigation and read two short articles about how producers use water and sunlight to make food. Students then respond to questions before drawing a model and writing a claim connected to the topic. For instance, in Unit 4, *Lava Lamps*, students research the Texas State Water & Conservation Board to learn more about soil and water conservation in their local area.

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Materials provide multiple opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying an understanding of scientific concepts.

- Materials consistently provide opportunities for students to graphically communicate understanding. In each unit, the materials provide multiple opportunities for students to write responses related to scientific concepts and engineering processes. In Unit 7, Activity 1, *Engineering Design Problem A*, students review the *Engineering Scenario* phenomenon comic about the optimal temperature of hot chocolate. The materials include a student graphic organizer to record their questions, observations, and cause-and-effect relationships posed in the comic. Students also write their identified engineering problems, criteria, and how to measure the effectiveness of their possible solutions. An additional example includes Unit 3, Activity 2, *Mixtures and Solutions*, in which students conduct an investigation of four mixtures, using a hand lens and smelling the contents of beakers. Students sketch the contents of each beaker on the *What Is In This?* investigation chart, with details and labels, and record questions for further investigation and discussion.
- The student materials include opportunities for students to engage in various formats of graphic communication. In Unit 8, Activity 3, *Turn the Light On*, students draw a model to show what they think is happening inside the lightbulb. Students explore using a battery, a lightbulb, and two wires, revise their model, and write about the changes made.
- Materials provide multiple opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying an understanding of scientific concepts. In the Lesson Plan for Unit 13, Activity 3, students use a world map and the "Actual Weather Data" chart to find the average weather for each location. In Unit 17, Activity 2, "Teacher Note" offers an optional activity, *Plants Without Resources,* which includes a graphic used throughout the unit.

Materials support students to act as scientists and engineers who can learn from engaging in phenomena and engineering design processes, make sense of concepts, and productively struggle.

- Materials include support for students to think like a scientist or engineers as they look through a lens of patterns. For example, in Unit 2, Activity 9, students consider the various student-driven questions they generated at the beginning of the unit as they began studying mixtures and solutions. Students work over two weeks to design a classification system for a variety of objects. The unit culminates with students creating a presentation of their classification system. The teacher provides guidance for students in the midst of a productive struggle. The teacher prompts students with questions such as, "What similarities do you notice? What patterns do you see? Show me what you've accomplished so far. What do you want to do next?" Students drive the decision-making as they classify items based on patterns of physical properties and create a model, tree map, and written description showing how they classified the items.
- Materials include resources for students to engage with phenomena in the form of comics. After reading the comic, teachers guide students to ask questions about the situation they have read using the Phenomenon Questioning Technique. Students begin each unit by thinking of their own thoughts and questions about natural phenomena and then record their questions on the "Asking Phenomenon Questions" printable. Both tools are transferable to any situation and allow students to develop scientific habits of mind over time. Materials encourage students to write down all questions without judgment, discuss, and select the most interesting question.

For example, Unit 9, Activity 5 *Phenomenon Explanation, "*Your Mission" directs students to write a letter to the character in the comic, explaining the answer to his guiding question, "What causes it to get darker and colder earlier in the fall?" The materials include a "Data Collection and Graphing*"* printable to guide the students

- Students have multiple opportunities to define problems and create solutions using a consistent process of Define, Ideate, Develop, Test and Optimize. In Unit 7, *Engineering Design: Conductors and Insulators*, students engage with an experience of how some cups are too hot to hold a warm drink and that some cups cool drinks too fast. Students work with groups to define the problem, ideate, and test creating a cup that will keep hands cool but drinks warm. Students engage in a planning and creation process and improve their original design through testing and collaboration. The materials give students time over a two-week period to explore, improve, and communicate their findings.
- Materials support students to act as scientists and engineers who can learn from engaging in phenomena and engineering design processes, make sense of concepts, and productively struggle. For example, in Unit 8, Activity 3, *Turn the Light On*, students explore with lightbulbs, batteries, and two wires to design two circuits that produce light energy and two circuits that do not produce light energy. Students draw and label their designs with an arrow to show the flow of electrical energy. Students identify the energy source and explain the difference between the two models. An additional example includes Unit 9, Activity 5, *Lesson Guide, Student-Driven Inquiry,* guiding students to reflect on how their thinking has changed. Students discuss their thinking with their partners and write their own thoughts in their student editions.

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Indicator 5.1

Materials promote students' use of evidence to develop, communicate, and evaluate explanations and solutions.

1	Materials prompt students to use evidence to support their hypotheses and claims.	M
2	Materials include embedded opportunities to develop and utilize scientific vocabulary in context.	M
3	Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level.	M
4	Materials provide opportunities for students to construct and present developmentally appropriate written and verbal arguments that justify explanations to phenomena and/or solutions to problems using evidence acquired from learning experiences.	M

Meets | Score 4/4

The materials meet the criteria for this indicator. Materials promote students' use of evidence to develop, communicate, and evaluate explanations and solutions.

The materials prompt students to use evidence to support their hypotheses and claims. Materials include embedded opportunities to develop and utilize scientific vocabulary in context. Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level. Materials provide opportunities for students to construct and present developmentally appropriate written and/or verbal arguments that justify explanations to phenomena and solutions to problems using evidence acquired from learning experiences.

Evidence includes but is not limited to:

Materials prompt students to use evidence to support their hypotheses and claims.

- Materials prompt students to use evidence to support their hypotheses and claims. For example, Unit 9, Activity 2, *Temperature, Current Season,* directs students to find evidence outside that helps us know what season it is. This resource prompts students to create their hypotheses and claims. Unit, Activity 4 *Length of Day* directs learners to collect data and then read an article using the text to answer the question, "How does the main idea of this article support your data?"
- The materials include an instructional design that guides students to design student-driven question boards. Students use their question boards to investigate, research, and collect evidence to support or revise the hypothesis generated at the beginning of the unit. For example, in Unit 2, Activity 2, students observe an image and collect evidence based on their observations. Students work with a group of four to discuss their observations and classifications of objects. Students share their evidence to support their classification decisions.
- Unit materials provide opportunities for verbal arguments that justify explanations of phenomena and solutions to problems. For example, in Unit 3, Activity 3, students collect evidence of the effect of combining different substances in beakers and evaluate whether or not they are mixtures or solutions, using observations as evidence, as specified in the TEKS. Students

use a provided graphic organizer in their student edition to record observations as they place a sugar cube in water, noting properties and changes in a sugar cube and in sand and gravel before, during, and after combining each with water. Students explain how they know the combinations are mixtures or solutions and compare and contrast their two tests.

- Unit materials provide opportunities for verbal arguments that justify explanations of phenomena and solutions to problems. For example, in Unit 19, Activity 4, students identify and describe past environments based on fossil evidence, as specified in the TEKS. Students view fossil layers via the image “Central Texas Fossils” and printables “Dinosaur Valley State Park” and “Waco Mammoth National Monument.” The students discuss what they notice and wonder about the fossils, then make a claim based on patterns they notice in the fossils, recording their evidence on a provided page of their student editions. Students then read an article on the discovery of dinosaur footprints in Glen Rose and write a response to the question, "What evidence from the article can you add or change to support your claim?"
- At the beginning of each unit, students read a comic strip as an introduction to a phenomenon and create a hypothesis from the questions they find most interesting. Subsequent unit activities provide students with evidence that may or may not support their hypothesis. Students complete each activity and consider the evidence they gathered and how it may impact their hypothesis. For example, in grade 4, Unit 8, *Electric Paths*, students infer why a lizard lies under a heat lamp in its tank. Students investigate open and closed electrical paths, design light setups that produce light energy, read an article, and learn what happens when an electrical path breaks. Students read another article to learn how cold-blooded animals in the wild keep warm, connect their learning to the phenomenon, and allow them to reflect on their hypotheses. In Activity 5, *Phenomenon Explanation*, students collect data to use as evidence to create a model that can support their explanation of the comic.

Materials include embedded opportunities to develop and utilize scientific vocabulary in context.

- The *Introduction to Texas Science- 2nd-5th Grades* includes the supports for introducing vocabulary terms that are embedded into the teacher materials. The guide states, “Texas Science strives to follow a disaggregated approach to vocabulary. This means that students grapple with the science concepts before introducing new science vocabulary." The guide outlines the intentional structures that support students to learn terms in their own language or vernacular before teaching them in scientific, academic language. After this, lessons give students time to practice the terms in context to lower the cognitive load and increase accessibility for all students. The guide gives an example of the phenomenon of comics at the beginning of the units to allow students to access the concepts in a format more accessible to most students than a traditional article or other academic text.
- Materials include embedded opportunities to develop and utilize scientific vocabulary in context. In Unit 3, Activity 2, students organize beakers into two groups based on their physical properties, recording which beakers belong to each group in a provided graphic organizer in their student edition. Students define the vocabulary words from the unit *mixture, solution,* and *dissolve* in a sidebar by filling in gaps in scaffolded sentence frames such as, "mixture: a ____of two or more substances. Each substance keeps its own____and can be easily____" To conclude the activity, students read a short article on trail mix containing the week's vocabulary in context, then write a short answer response to the questions, "Why is trail mix not a solution?" and "What is the main difference between a mixture and a solution?"
- Materials include embedded opportunities to develop and utilize scientific vocabulary in context. Grade 4 materials include an “ELD Student Edition,” providing a slide with a short

"Close Reading" passage, allowing students to manipulate vocabulary in a different way. For example, in Unit 12, students read a short text about weathering, erosion, and deposition and follow directions such as: "Discuss the highlighted words with a partner. When you see the weather, what do you normally think of? In this sentence, is weather acting as a noun or a verb? Describe what you think it means. What does erode mean? Describe how water erodes pieces of rock."

- The lesson plan provides strategies for supporting students' vocabulary development in the context of the lesson. For example, the Unit 5 Lesson Plan *Optional, "*Prior Knowledge" guides teachers on the strategy to review the prior vocabulary using a list of already introduced words. In Unit 18, Activity 2, students review new terms introduced on the first day. Students apply the terms to describe the previous activity they engaged in related to a food web. Students then write a definition of the food web in the student edition response task. Students speak sentences about an animal and their role in a food web, similar to the sentence the teacher models. Students practice recalling terms as the teacher asks them to recall questions such as, "Why do organisms need food to live?"

Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level.

- Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level. For example, in Unit 10, Activity 5, students engage in student-driven inquiry to identify patterns using a monthly moon calendar. Students discuss with their partners how their thinking about the phases of the moon phenomenon has changed during the unit. Students consider if their hypothesis is supported or refuted so far. During collaborative learning, students work in groups of four to provide feedback to three other groups. Students place feedback on others' models by identifying any missing evidence.
- The materials integrate argumentation and discourse to support students' development. For example, Unit 1 introduces scientific and engineering practices (SEP) that will be referred to and used throughout the program. Activity 5 provides an explanation of what an argument is, and how scientists and engineers use arguments to explain and communicate their explanations and solutions. Students read that scientists and engineers come up with arguments for explaining a phenomenon, which is a written claim backed up by evidence and reasoning. In Unit 1, Activity 5, teachers review the experimental design and lead students to understand how this connects to a claim, evidence, and reasoning. Teachers define an argument as a written claim backed by evidence and reasoning, as opposed to a disagreement in the lesson. Then, students read an article in the student edition giving more information about what an argument is. Students work in groups to write an explanation of their experiment using the "Create An Argument" printable.
- Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level. For example, in Unit 7, Activity 7, students revisit the phenomenon comic about a power outage and how solar power works and participate in the discourse. Students view an image, "Texas Energy Graphs," and discuss in pairs, "How has your understanding of the phenomenon changed?" Students then complete a Quick Write response to the unit guiding question, "How can we overcome the challenges of using renewable resources while meeting our energy needs? Why is it important to do so?" Students share answers and reflect on their participation in the class discussion. Unit materials also include a *"Home Learning Letter,"* providing families with key vocabulary terms and questions for families to ask students about their learning.

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Materials provide opportunities for students to construct and present developmentally appropriate written and verbal arguments that justify explanations to phenomena and/or solutions to problems using evidence acquired from learning experiences.

- Materials provide opportunities for students to construct and present developmentally appropriate verbal arguments that justify explanations of phenomena and solutions to problems using evidence-acquired learning experiences. For example, in Unit 2, Activity 9, students create a tree map of how they could classify objects by their physical properties. Students draft a description of their classification system using vocabulary learned in the unit, such as *classify, density, physical state, mass, temperature,* and *magnetism.* In Activity 10, students present their explanation speeches to one another. Students give each other feedback on their explanations using a protocol and sentence stems such as, "The strongest part of your work was___ because.___", "I think you should add ____", or "I wondered why_____". Through this feedback, students hold one another accountable for providing evidence and reasoning from the learning experiences to support the ideas they present.
- Throughout the program, students begin each unit with phenomena that they then proceed to investigate through related experiments and engineering design processes. At the culmination of each unit, students revisit their initial thoughts on the phenomena to give a revised explanation of their thinking, based on what they have learned during the unit. For example, in Unit 3, Activity 6, students revisit an earlier investigation of what happens to M&Ms in water and write a response to the question, "What part of the phenomenon is a mixture? How do you know? What part of the phenomenon is a solution? How do you know? How would you separate the 'ms' from the rest of the ingredients in the beaker?"
- Materials provide opportunities for students to construct and present developmentally appropriate verbal arguments that justify explanations of phenomena. For example, in Unit 7, Activity 7, students revisit the phenomenon comic about a power outage and how solar power works. Students view an image, “Texas Energy Graphs,” and discuss in pairs, "How has your understanding of the phenomenon changed?" Students then complete a Quick Write response to the unit guiding question, "How can we overcome the challenges of using renewable resources while meeting our energy needs? Why is it important to do so?" Students share answers and reflect on their participation in the class discussion.
- Unit materials provide opportunities for verbal arguments that justify explanations to phenomena and solutions to problems. For example, in Unit 4, Activity 5, *Lava Lamps,* in the “Phenomenon Explanation” students investigate and explain if the amount of matter is conserved when a lava lamp is created. During independent work, students write a claim that aims to answer the guiding question and is supported by evidence and reasoning. Students share their claims, evidence, and reasoning with a partner in small groups or a whole class setting. Students discuss how their understanding of the phenomenon changed and what surprised them the most. Students return to the hypothesis they created in Activity 1 about whether matter is conserved when mixtures and solutions are created. Students investigate their hypothesis by measuring and comparing the mass of matter used to create a lava lamp before and after it is created. Students create a claim that is supported by evidence and data they collect while making the lava lamp. Students use reasoning to explain how their evidence supports their claim.
- Materials provide opportunities for students to construct and present developmentally appropriate written arguments that justify explanations of phenomenon solutions to problems using evidence acquired from learning experiences. For example, Unit 13 Activity 5,

the“Phenomenon Explanation” directs students to complete the following scenario, “Alana was visiting the Chihuahuan Desert in El Paso, Texas when it started to rain. Why is it raining in El Paso, Texas? Explain this phenomenon to Alana," using the terms *weather and climate*

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Indicator 5.2

Materials provide teacher guidance to support student reasoning and communication skills.

1	Materials provide teacher guidance on anticipating student responses and the use of questioning to deepen student thinking.	M
2	Materials include teacher guidance on how to scaffold and support students' development and use of scientific vocabulary in context.	M
3	Materials provide teacher guidance on preparing for student discourse and supporting students in using evidence to construct written and verbal claims.	M
4	Materials support and guide teachers in facilitating the sharing of students' thinking and finding solutions.	M

Meets | Score 4/4

The materials meet the criteria for this indicator. Materials provide teacher guidance to support student reasoning and communication skills.

Materials provide teacher guidance on anticipating student responses and the use of questioning to deepen student thinking. Materials include teacher guidance on how to scaffold and support students' development and use of scientific vocabulary in context. Materials provide teacher guidance on preparing for student discourse and supporting students in using evidence to construct written and verbal claims. Materials support and guide teachers in facilitating the sharing of students' thinking and finding solutions.

Evidence includes but is not limited to:

Materials provide teacher guidance on anticipating student responses and the use of questioning to deepen student thinking.

- Materials provide teacher guidance on anticipating student responses and the use of questioning to deepen student thinking. The teacher's lesson plan includes possible student responses in specialized fonts that are easy to see. For example, Unit 6, Activity 2 includes scaffolding for student-driven inquiry. The teacher posts a series of questions for students to respond to. After students discuss, the teacher asks, "What does the difference between the ball on the left and the ball on the right tell us about energy?" The teacher's guidance in the lesson plan provides potential student responses such as, "The ball on the left does not have mechanical energy; the ball on the right has mechanical energy because it is moving." Based on student responses, the lesson guides the teacher to relate ideas from the inquiry to questions students investigate in later activities.
- Materials provide teacher guidance within lessons, including possible student responses, teacher responses, and questioning that builds on students' thinking. For example, in Unit 11, Activity 2, students model one part of the water cycle to describe and illustrate the movement of water by observing how water evaporates on a hot day. Teacher guidance directs the use of the "Student-Driven Inquiry" process by providing discussion questions such as, "What did you observe? What did you wonder? Where do you think the water went?" The possible student

answers include, "Students should state that they observe the water disappearing from the pavement. Students may wonder where the water went or how it disappeared."

- Materials provide teacher guidance on anticipating student responses and the use of questioning to deepen student thinking. For example, Unit 5 instructs teachers to have students discuss the investigation question and provides possible student answers, such as "How does the distance between the magnet and screws affect their interaction?" The teacher then leads students to answer the question, “What will you be doing in each of the three trials?" and provides the possible student response of, "Measuring how far away the magnet is from the steel tack when the steel tack starts to wobble."
- Materials provide teacher guidance on anticipating student responses. For example, the “Unit Lesson Guides” contain embedded misconception alerts, providing teachers with anticipated student thinking that could be behind students' incorrect or partially correct responses. For example, in Grade 4, Unit 8, the alert states that students may think that different-colored wires affect how an electrical path works. The materials direct the teacher to explain to students that the color of the wire does not have any bearing on its ability to complete the electrical path. The colored wires exist only for human identification.

Materials include teacher guidance on how to scaffold and support students’ development and use of scientific vocabulary in context.

- Materials include teacher guidance on how to scaffold and support students' development and use of scientific vocabulary in context. For example, the “Core Components Descriptions (Grades K-5”) document explains the various resources within the materials that support the teacher with scaffolding and development of grade-level vocabulary, including word wall cards, flashcards, and resources designed to break down vocabulary for English Language Development, such as slides to explain terms, close reading texts, and application discussion stems. In addition, in Unit 9, students review familiar terms such as *seasons, temperature,* and *thermal energy.* The lesson plan includes a student-friendly definition to support the teacher with scaffolding for new and novel terms like *horizon, length of a day, sequence, sunrise, and sunset*.
- Lessons include teacher guidance to assist students in using new vocabulary. In the “Lesson Guide” for Unit 17, “Vocabulary” uses a vocabulary icon and suggests teacher directions such as, "Say: In science, a thing that is nonliving, such as a rock or air, is called ‘abiotic.’ Say: In science, a plant or animal that is living, such as a bobcat or sunflower, or something that comes from a living thing, such as a seed, is called biotic." Meanwhile, the students are working on their *“*Classification Challenge: Sorting Cards” activity.
- Materials include an “ELD Teacher Edition” to support students’ development and use of scientific vocabulary in context. A slide presentation picture-walk of the new vocabulary guides the teacher to place labels on specific parts of the picture and discuss the new vocabulary. For example, in grade 4, Unit 12, a vocabulary slide shows three pictures of different landscapes. Teachers draw a line to the tree in the rock when discussing the term *weathering*, draw a line to the water carrying the rock away when discussing the term *erosion*, and draw a line to the mud being deposited by a river when discussing the term *deposition*. Teachers then write a sentence using all three new vocabulary words as a caption at the bottom of the slide.

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Materials provide teacher guidance on preparing for student discourse and supporting students in using evidence to construct written and verbal claims.

- The materials provide teacher guidance for student discourse. For example, the *Introduction to Texas Science-2nd-5th Grades* resource provides teachers with guidance for developing student questions. The summary outlines how each unit begins with students studying the phenomenon and then generating questions about the topic. The guide provides a "Phenomenon Questioning Technique" document that supports the teacher in building students' questions throughout the year.
- Teacher lesson guides provide routines and scaffolds as students construct written and verbal claims. In Unit 11, Activity 5, students write a response to the question, "How has your understanding of the phenomenon (the water cycle) changed so far? Has your hypothesis been refuted or supported so far?" Teachers guide students in discussing their responses while still allowing for student thinking with verbiage such as, "How do you think water is cycled on Earth? Do not correct or confirm any ideas."
- Materials provide teacher guidance on preparing for student discourse and supporting students in using evidence to construct written and verbal claims. For example, in grade 4, Unit 12, Activity 2, materials prompt the teacher to have students discuss whether their hypothesis had been supported or refuted. The teacher also asks students to discuss what they have learned and reminds them that scientists change their hypothesis when new information is learned or evidence is gathered. Students share their thoughts and then write them on their student edition. An additional example includes Unit 17, Lesson Plan, "Collaborative Learning," which guides teachers to "have students engage in scientific discussion about each organism, defending their choice for each placement." The materials include suggestions such as "Post the following prompts to help students in their scientific discussions: a. Why do you think that? b. What evidence can you use to support your claim? c. I agree because... d. I disagree because..."

Materials support and guide teachers in facilitating the sharing of students' thinking and finding solutions.

- Teacher lesson guides provide routines and scaffolds as students share their thinking. For example, in Unit 11, Activity 8, students work in collaborative groups to plan a model of and write a description of the water cycle, which they will share. Teachers facilitate student planning by encouraging respect for all ideas and asking questions such as: "What type of model will you make? How will you show each step? Can you explain why...?" and discussions aligned to the investigation focus. The materials also include a questioning rubric to assist teacher instruction in student questioning and discussions aligned to the investigation focus, designed as a reference for students across multiple units with descriptors for levels of questions. For example, in grade 3, Level 1 is described as "I did not participate," while Level 4 is described as "I asked as many questions as I could think of and encouraged my group members. I even revised and improved my questions from feedback."
- Grade 4 materials support and guide teachers in facilitating the sharing of students' thinking and finding solutions. For example, in Unit 4, *Lava Lamps*, students create mixtures to investigate and explain that the amount of matter is conserved when creating different mixtures. After the investigation, students turn to a partner and discuss whether matter was conserved in the oil and water mixture and how they know. Materials direct the teacher to provide the following sentence stem for students to use to facilitate the sharing of their thinking, "Matter _____

conserved when ___ and ____ formed a mixture. I know this because _____.” An additional example includes Unit 5, *Independent Work, which* suggests that teachers "have students follow the directions in the 'Make a Model and Claim' sections of their student editions. Have students share their models and claims with a partner to receive feedback."

- Teacher lesson plans and resources support the teacher in holding students accountable for using evidence to construct and support written and verbal claims. For example, in Unit 5, Activity 10, students refer to the resource, *Presenting and Responding to Claim, Evidence, and Reasoning,* as they work in pairs to present their claim about the guiding question, "How do magnetism, gravity, and friction work together with a magnet, paperclip, and paper to make the paper slide slowly down the refrigerator?" Students use the resource to give one another feedback, and the teacher uses the resource to provide corrective feedback on their written claims to ensure they are supporting claims with evidence.

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Indicator 6.1

Materials include a variety of TEKS-aligned and developmentally appropriate assessment tools.

1	Materials include a range of diagnostic, formative, and summative assessments to assess student learning in a variety of formats.	M
2	Materials assess all student expectations over the breadth of the course and indicate which student expectations are being assessed in each assessment.	M
3	Materials include assessments that integrate scientific concepts and science and engineering practices with recurring themes and concepts.	M
4	Materials include assessments that require students to apply knowledge and skills to novel contexts.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials include a variety of TEKS-aligned and developmentally appropriate assessment tools.

Materials include a range of diagnostic, formative, and summative assessments to assess student learning in a variety of formats. Materials assess all student expectations over the breadth of the course and indicate which student expectations are being assessed in each assessment. Materials include assessments that integrate scientific concepts and science and engineering practices with recurring themes and concepts. Materials include assessments that require students to apply knowledge and skills to novel contexts.

Evidence includes but is not limited to:

Materials include a range of diagnostic, formative, and summative assessments to assess student learning in a variety of formats.

- Materials include a range of diagnostic, formative, and summative assessments that include formal and informal opportunities to assess student learning in a variety of formats, described in the “Core Components Descriptions (Grades K-5)” document. This resource describes the various assessment types for each unit, such as formative assessments, performance tasks, comprehension reading assessments, and summative unit assessments. For example, the assessment types are explained in the “Teacher's Lesson Plans” for each unit, including formative assessments. In the online student tools, teachers can enable the students to complete all assessment types, both formal and informal, in the online format. The Core Components Descriptions also include a visual example of the assessments as well as an assessment map for each unit.
- Materials include a range of assessments in a variety of formats. For example, the unit and weekly teacher guidance documents include a chart showing unit activities, success criteria, and formative assessment evidence. For example, in Unit 7, Activity 4, students create a plan to solve the unit engineering problem of keeping a hot drink warm. Teachers evaluate students' written responses to engineering process planning questions such as, "Which materials would be helpful with keeping the liquid warm within the cup?" to assess their understanding of unit

TEKS 4.8B. This activity occurs earlier in the unit, allowing teachers the opportunity to monitor and adjust instruction for students who don't meet success criteria before the end of the unit.

- In Unit 7, Week 14, students take summative assessments for reading comprehension of questions such as, "What problem does Jackson need to engineer a solution for?" as well as completing a performance task on unit content. During the performance task, students demonstrate knowledge of unit vocabulary (*conductors* and *insulators*) via a sorting task, then read a scenario, analyze data, and explain their reasoning for a solution. To complete the summative assessment, students answer two STAAR-like questions related to the unit content, such as, "Which statement is true, based on the data in the table?" after being given a scenario of water bottle temperature after being wrapped in various materials.
- The materials include a variety of formal assessment types, including performance tasks, reading comprehension assessment, and a summative unit assessment. Assessments are available in a variety of formats, including online or printed copies. For example, in Unit 6, *Energy Transfer,* the unit materials include a “Reading Comprehension Assessment” with multiple-choice questions about an article. In the Unit 6 unit assessment, different question types give the teacher multiple ways to analyze dimensions of student learning, such as multiple-choice questions, short answer, example identification with matching, true or false question types, and Claim Evidence Reasoning question types. Also included are Performance Tasks, a summative assessment that provides students the opportunity to apply what they have learned to a novel situation and allows students to demonstrate understanding through application.
- Materials include a range of assessments in a variety of formats. For example, the Unit 9, Activity 4, “Debrief” section provides the teacher with questions and possible student answers to lead a class discussion. The teacher is directed to use a student “Length of Day” graph as an example, leading a class discussion on the following questions, "What patterns do you see?", "Can you describe the sequence of the season in terms of length of day?" and "How does the length of the day change over the course of a year?" Possible Student answers are included to help the teacher assess student understanding. Formal assessments for Unit 11 include the “Water Cycle Reading Comprehension,” “Water Cycle Unit,” and “Water Cycle Performance Task” assessments. Informal assessments include student written responses for Activities 2-8 and the student edition Response Models for Activities 9 and 10.

Materials assess all student expectations over the breadth of the course and indicate which student expectations are being assessed in each assessment.

- The materials provide a “Texas Science Scope and Sequence” document that shows TEKS correlation for each unit so teachers know where and when TEKS are assessed. Because every unit contains both formative and summative assessments, this reflects assessment for all grade 4 science TEKS.
- Materials assess all student expectations and indicate which student expectations are assessed. For example, the materials provide a “Citation to the TEKS and ELPS for Studies Weekly” document that shows TEKS correlation for formal, informal, formative, and summative assessments throughout each unit, indicating where and when each student expectation will be assessed. Unit lesson plans include resources that indicate the content, SEP, RTC, and other content area standards, such as reading/language arts or math, which the unit addresses. Within the activity lesson plan, aligned RTC SEP and ELPS are listed. The chart includes evidence for all assessed standards during the school year. In addition, the “Unit Assessment Answer Keys” provide an Assessment Map listing the science standards covered in that unit.

- Materials assess all student expectations and indicate which student expectations are assessed. For example, the Unit 17 Assessment Map indicates which SEP and RTC are addressed in each "Optional Performance Task." Optional Performance Task 1 addresses SEP 1B and 1E, and RTC 5B, 5E, and 5F. Optional Performance Task 2 addresses SEP 3C and 4A, and RTC 5E and 5F.

Materials include assessments that integrate scientific concepts and science and engineering practices with recurring themes and concepts.

- Materials included assessments that integrate scientific concepts and science and engineering practices with recurring themes and concepts. For example, the unit assessments and performance assessments include an Assessment Map that contains a list of the Science and Engineering Practices (SEP) and Recurring Themes and Concepts (RTC) covered within the task. For example, Unit 12 assesses SEP Develop and Use Models and RTC Cause and Effect. Students read the article "Weathering and Change" and then draw a model to show the process and effects of weathering by ice on a sidewalk. Students then identify the effect of weathering by water and explain what causes oddly shaped landforms, such as arches in deserts. As a formative assessment, the teacher uses the models and the answers to the questions from the article to check for proficiency in the success criteria.
- Materials included assessments that integrate scientific concepts and science and engineering practices with recurring themes and concepts. The informal assessments include opportunities for the teacher to analyze student understanding of SEP and RTC. For example, in Unit 14, Activity 2 evaluates RTC Scale, Proportion, and Quantity as well as SEP Develop Explanations, Collect Evidence, Use Mathematics, Analyze Data, and Communicate Explanations. In Unit 15, Activity 5, "*Phenomenon Explanation,"* students integrate SEP of Listen Actively and Discuss with RTC of Energy and Matter as they participate in a class discussion and reflect on which of their comments got the most feedback, which comments they agree and disagree with, and which supported their thinking the most. Teachers evaluate student responses to this final activity of the unit as a formative assessment.
- In Unit 17, the Unit Objectives state, "Students will be able to investigate and explain how most producers can make their own food using sunlight, water, and carbon dioxide through the cycling of matter, aligned with SEP Develop Explanations and Propose Solutions and RTC Energy and Matter. Unit 17, Activity 4 Success Criteria defines student success: "I can explain how producers use carbon dioxide to make their own food by investigating how matter cycles into the plant." The materials instruct teachers to have students use the *Make a Model and Claim* resource to check for the proficiency of the success criteria" as a formative assessment to check student progress.

Materials include assessments that require students to apply knowledge and skills to novel contexts.

- Students apply their learning from each unit to novel stimuli during summative assessments. In Unit 15, students complete the summative performance task Energy Use and Conservation to demonstrate their knowledge of TEKS 4.11B. Students complete a mini-research project comparing two different towns to determine how using different natural resources to create energy impacts the environment. In Unit 13 of the Student Edition, the "Phenomenon Explanation" in Activity 5 ends with students taking the learning they have gained and answering the following questions, "Does today's weather align with the typical climate pattern? Why or Why not?" and " What is the difference between weather and climate?" These novel tasks differ from those in the unit materials.

- The performance assessments include student application of knowledge and skills to novel contexts. For example, in Unit 9, for the performance task, students collect and analyze data to identify sequences and predict patterns of change in seasons. Students may respond to three different tasks. Students read various scenario cards, analyzing each situation and determining which season the card describes in Task 1. In Task 2, students describe the relationship between daylight and the seasons of the year by analyzing a data table and responding to questions. Task 3 has students analyze a data table showing the average length of daylight to predict which season would be next. Students justify their answers and predict what the next month's average hours of daylight will be.
- Each unit includes a performance task that allows students to apply what they have learned to a novel context. For example, in Unit 20, students analyze data and answer questions about plant root length and average rainfall to help astronauts choose which plant to take with them to the International Space Station. In the corresponding Unit Assessment, students first label the fruit, leaves, root system, and stem of a tomato plant diagram. Students then use a diagram of an apple tree and label branches, roots, and the trunk. In the next step, students observe a close-up image of a sequoia cactus and describe where this plant would survive best based on the function of its structures.

Studies Weekly Texas Science Grade 4

Indicator 6.2

Materials include guidance that explains how to analyze and respond to data from assessment tools.

1	Materials include information and/or resources that provide guidance for evaluating student responses.	M
2	Materials support teachers' analysis of assessment data with guidance and direction to respond to individual students' needs, in all areas of science, based on measures of student progress appropriate for the developmental level.	PM
3	Assessment tools yield relevant information for teachers to use when planning instruction, intervention, and extension.	M
4	Materials provide a variety of resources and teacher guidance on how to leverage different activities to respond to student data.	PM

Partial Meets | Score 1/2

The materials partially meet the criteria for this indicator. Materials partially include guidance that explains how to analyze and respond to data from assessment tools.

Materials include information and/or resources that provide guidance for evaluating student responses. Materials partially support teachers' analysis of assessment data with guidance and direction to respond to individual students' needs, in all areas of science, based on measures of student progress appropriate for the developmental level. Assessment tools yield relevant information for teachers to use when planning instruction, intervention, and extension. Materials somewhat provide a variety of resources and teacher guidance on how to leverage different activities to respond to student data.

Evidence includes but is not limited to:

Materials include information and/or resources that provide guidance for evaluating student responses.

- Materials include information and/or resources that provide guidance for evaluating student responses. The "Core Components" document describes the unit answer keys as "A teacher tool that provides teacher guidance, support, and suggestions for student work in the student editions as well as the formative assessment." The unit assessment answer keys include the correct or approximate responses for open-ended responses to support the teacher with scoring and include links to rubrics for the teacher to check the understanding and proficiency of formative assessments. The unit answer keys also include the correct responses to open-ended or short answer responses in the student editions for each unit in a specialized font. Formative assessment activities are labeled to direct teacher attention to opportunities for evaluation. Included in the unit answer keys are the Rubric for Phenomenon Explanation and General Formative Assessment Rubric, which gives teachers further information to determine whether students are meeting success criteria.
- Each unit of the materials provides guidance for teachers in evaluating student responses via provided rubrics. All answer keys are clearly structured with a chart depicting the activity number and name, teacher questions in black print, and answers or possible suggested student answers in bold red print. Formative assessment activities are labeled to direct teacher

attention to opportunities for evaluation. The unit answer keys include the Rubric for Phenomenon Explanation and the General Formative Assessment Rubric. The rubrics give teachers further information to determine whether students are meeting success criteria.

- Materials include information and/or resources that provide guidance for evaluating student responses. For example, in Unit 11, Activity 1, students use a rubric to self-assess their questions and responses. Teachers and students assess proficiency according to descriptors from 1, Below Proficient: "I did not participate," to 4, Above Proficiency: "I asked as many questions as I could think of and encouraged my group members. I even revised and improved my questions from feedback." In Unit 13, the Teacher Resources for the Weather Patterns Over Time Answer Key provided teachers with possible student answers such as, "How has your understanding of the phenomenon changed after reading the article? Provide evidence from the model and text to support your answer." The answer key also provides guidance for the teachers in assessing student responses, such as, "Answers may vary, but some may say they thought that weather and climate were the same thing, and now they know there is a difference."

Materials support teachers' analysis of assessment data with guidance and direction to respond to individual students' needs, in all areas of science, based on measures of student progress appropriate for the developmental level.

- The materials provide limited guidance for report use, including teacher support for analysis of reports and limited teacher support for printed assessments. For example, the teacher *Reports* video gives guidance on how to navigate and access the weekly assessment reports and weekly progress reports to analyze student achievement and progress. Teachers have access to a line graph that demonstrates students' weekly assessment scores and comprehension progress; however, the materials lack significant guidance and direction to respond to individual students' needs.
- The materials provide limited guidance for report use, including teacher support for analysis of reports and limited teacher support for printed assessments. For example, for students who complete the assessments using paper and pencil, the materials lack any tools for the teacher to analyze data trends or patterns or plan for instructional responses. The materials lack any evidence of tools to support PLC or data analysis across the grade level.
- Materials provide a variety of reports to show student level of mastery of the content and success criteria but lack guidance and direction for teachers to respond to individual student's needs in all areas of science, based on measures of student progress appropriate for the developmental level. For example, teachers can access reports via the program's online data management system. Teachers view Weekly Assessments by class, student, and student responses, Weekly Progress Reports, Customized Content Reports, and Classroom Reports to view average assessment scores. Data is presented both in graph and list form. Teachers can also monitor whether students have started, not started, or finished articles and activities. The materials also provide a training video, *Reports,* to familiarize teachers with available reports and ways of viewing student data and progress. However, with all this, the materials lack guidance and direction for teachers to use this data to respond to individual student needs.
- Materials provide some guidance to support teachers with analyzing formative assessment data and student understanding. For example, Unit 7, Activity 1 teacher edition includes probable student responses, and some lessons include guidance for the teacher about how to use guided questioning or small group instruction to respond to students who only demonstrate partial mastery. The unit answer keys, comprehension assessment answer keys, and performance assessment answer keys provide correct or partially correct answers, and the performance

assessment includes a table with guidance on which activities to reteach. However, there is a lack of teacher resources or direction to respond to individual student needs based on measures of student progress. The materials lack novel resources for the teacher to use for reteaching or responding to student needs based on performance.

Assessment tools yield relevant information for teachers to use when planning instruction, intervention, and extension.

- Assessment tools contain relevant information for teachers to use when planning instruction, intervention, and extension. For example, in Unit 8: Electric Paths, in the answer key after Activity 2, the teacher uses the human electrical path and open and closed path models to check student proficiency in the success criteria. From this, the teacher uses oral questioning to support students who struggle to complete the questions at proficiency level, such as "If a path is closed, is the light on or off?"
- The materials consistently provide reteaching suggestions within the unit/weekly teacher guidance documents. For example, in Unit 19, Activity 3, the materials provide a lower-level lexile article on the unit topic, A Changing Environment Lower Lexile Articles, and suggest that teachers have students work in a teacher-led group to read and analyze the article. In addition, the answer key for Unit 15, Activity 1, Energy Use and Conservation, serves as a formative assessment, and suggestions for students who struggled with proficiency include pairing with a peer and comparing responses to evaluate feedback.
- The Unit Assessments include an Assessment Map that matches each question on the assessment to the number of the activity from the unit related to it. Teachers use this information to plan for student remediation or review. For example, in grade 4, Unit 16, Assessment Item 1 is correlated to Activity 3.

Materials provide a variety of resources and teacher guidance on how to leverage different activities to respond to student data.

- The materials provide limited resources for teachers planning for responding to student data and lack teacher resources that explain how to leverage various tools aligned to student performance on assessments or at various knowledge levels. For example, Unit 5, Activity 3 encourages the teacher to reteach if students struggled to complete the formative assessment at proficiency level using small groups or one-on-one time. Post-activity guidance encourages the teacher to reteach in small groups or individually but lacks guidance on what tools or resources to reteach with.
- Materials provide additional student support materials along with teacher guidance on how to use them. For example, in Unit 7, word wall cards with blank boxes are provided for the unit vocabulary words such as *conductor, electrical energy,* and *insulator.* Teachers follow provided guidance, including having the class create a drawing for each vocabulary word, post the drawings on the classroom word wall, and refer to the cards throughout the unit. However, the materials do not provide a list of suggested activities to assign students or a set of lessons for students scoring below expectations.
- The materials provide teachers with reports of students' weekly progress, weekly assessments, and the status of students' completed work; however, the materials' data systems do not group students for reteaching or have alternate lessons and activities related to the assessment data.

- The materials provide a variety of resources and teacher guidance on how to leverage different activities to scaffold student learning but lack guidance on how to respond to student data to help plan for small-group instruction to address gaps in learning.

Studies Weekly Texas Science Grade 4

Indicator 6.3

Assessments are clear and easy to understand.

1	Assessments contain items that are scientifically accurate, avoid bias, and are free from errors.	M
2	Assessment tools use clear pictures and graphics that are developmentally appropriate.	M
3	Materials provide guidance to ensure consistent and accurate administration of assessment tools.	M
4	Materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned to learning goals.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Assessments are clear and easy to understand.

Assessments contain items that are scientifically accurate, avoid bias, and are free from errors. Assessment tools use clear pictures and graphics that are developmentally appropriate. Materials provide guidance to ensure consistent and accurate administration of assessment tools. Materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned to learning goals.

Evidence includes but is not limited to:

Assessments contain items that are scientifically accurate, avoid bias, and are free from errors.

- Unit lessons and experiences include scientifically accurate terminology, are free from bias, and are error-free. The Unit 4 lesson guides the teacher in facilitating collaborative learning discussions about how matter changes when creating mixtures. For example, the teacher asks, “What would it mean if the mass goes up after the mixture is created?” The teacher is looking for the response: more mass was created. If the mixture results in a decrease or if the mass goes down after the mixture forms, the students should say that some matter was lost or disappeared. The lesson includes options for how to describe this to students in developmentally appropriate terms. It provides options for how students can respond to demonstrate an accurate understanding of the concepts.
- Student assessment items utilize scientifically accurate vocabulary and set expectations for students to use accurate vocabulary in their written responses. For example, in Unit 15, Unit Assessment, the materials correctly explain each answer choice for question 6 and why each is either correct or incorrect, stating, "Which is the most common use of oil today? A. Heating homes; only a small percentage of homes use oil for heat, B. Creating plastics; less than 5% of fossil fuels are used for plastics production, C. Generating electricity; almost no oil is used for large-scale electricity generation (coal and natural gas are used)." Answer choice D is highlighted in bold red print to show that it is correct. "D. Fueling transportation; refining oil into gasoline and diesel fuels is the largest use of oil."
- Assessments contain items that are scientifically accurate, avoid bias, and are free from errors. For example, in grade 4, Unit 20, students read an article and answer the question, “How do roots and leaves function to help a plant to survive?” The question uses the word *function*

instead of *work*, supporting the grade-level concept. The Unit 20 Unit Assessment has a multiple-choice question that provides an image of a potted plant taken out of the pot showing its root system. Students analyze the image to decide which structure or function relationship is shown. The illustration provides support for students who may have never seen the roots of a plant, helping avoid bias.

Assessment tools use clear pictures and graphics that are developmentally appropriate.

- Assessments use developmentally appropriate graphics that focus on the question asked. For example, in Unit 11 *U*nit Assessment, students label a provided diagram with parts of the water cycle. The graphic does not include irrelevant material, such as animals, that aren't related to the question and would be potentially distracting for fourth-grade students. Unit 11 also includes a visual of the water cycle with labels students can drag into boxes that label each step, such as “precipitation,” “condensation,” “collection,” and “evaporation.” The water cycle image is clear, with vivid colors and graphics that depict the water cycle accurately.
- Assessment tools use clear pictures and graphics that are developmentally appropriate. Materials provide simple and easy-to-read tables for students to analyze and answer questions based on the information provided. For example, the Unit 13 assessment table includes the average temperature for five different years, and students use the table information for questions 4 and 5. The Unit 20 unit assessment includes a table with average rainfall and two types of grass with a diagram of their root structures, including the length of the roots. This image supports students by using the table to determine which plant would survive in Helena, Montana, and giving evidence to support their thinking.
- Assessment tools use clear pictures and graphics that are developmentally appropriate. For example, in Unit 12, the Unit Assessment includes questions with pictures of real-life examples of weathering and erosion found in nature. Unit 20, assessment open response question includes an illustration depicting the depth of Fescue Turf and of Buffalo Grass. Students use the detailed illustration and data chart provided to choose which plant would best survive in Helena, Montana.

Materials provide guidance to ensure consistent and accurate administration of assessment tools.

- The materials provide guidance for consistent and accurate administration of assessments. For example, the “Introduction to Texas Science 2nd-5th Grades PDF” states that "Every unit includes a variety of assessments," and describes the various types of assessments, where to find them, and how teachers may use this evidence to inform instruction. Materials also include a Tips for Administering Assessments document, which includes step-by-step directions for assessment administration. The steps provide teacher guidance for different phases of assessment, including “Preparation,” which guides the teacher to prepare the written and technological tools and test the technology prior to testing to avoid potential interruptions, and “Accommodations,” which reminds the teacher to provide accommodations to eligible students according to their Individualized Education Program (IEP). Additional guidance is provided in the “Privacy, Distractions,” “Monitoring,” and “Stress Management” sections of the document.
- The materials contain an overview document, “How To Use Studies Weekly,” outlining the available assessments and the consistency of assessments from unit to unit. In the “Tips for Administering Assessments, Accommodations,” the directions state that the teacher must not prompt or hint during the duration of the assessment nor assist students in constructing or rephrasing their responses. The “ Monitoring “ section guides the teacher to ensure that there is

no talking during the test, and to allow students to take breaks as needed. If students request help related to the assessment's content, the document guides the teacher to respond naturally with, "I can't answer that for you; just do your best."

- The materials provide teacher resources to understand assessment procedures for the variety of provided assessment types. For example, the training video "Assessments" provides teachers with information about how to navigate the assessments, access a student view, grade, view classroom test statistics, and edit or print the test. The "Tips for Administering Assessments" document provides a script to ensure consistency of the administration, guides the teacher to space student desks apart or use privacy folders to ensure accurate assessment results, and provides student activities to help manage testing anxiety.

Materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned to learning goals.

- The materials allow teachers to assess students using a printable copy of assessments or an online format. The online format of assessments includes an audible reading of the assessment materials and additional graphics which support the students with the directions of the task. The training materials include a video that explains assessments and their capabilities. The video explains how the unit assessment allows the teacher to edit, delete, and add to the questions that are included in the unit assessment. The questions are defaulted to allow for audible reading of questions and answers. The teacher may customize assessments such as adding or deleting answer choices to questions. Assessments include 11 different question types, which the teacher can use as they add questions. The questions give the options for teachers to include other materials such as images, articles, crosswords, and misspelled words for students to unscramble. The teacher can add additional instructions for students to access prior to beginning the assessment.
- Unit Performance Tasks provide different options that teachers choose to meet the needs of their students. For example, the Unit 15 performance task provides teachers with a choice of three different task options. In Task 1, students analyze graphs to determine the critical role of energy resources in modern life. In Task 2, students identify cause-and-effect relationships to explain how conserving resources impacts the environment. In Task 3, students compare two different pillows to explain how disposal and recycling impact the environment. Teachers could select one, two, or all three tasks for assessment depending on their students' needs.
- Materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned to learning goals. For example, the teacher answer keys for each unit assessment indicate the depth of knowledge rankings for each question to support remediation or review. These tools facilitate teacher understanding of the level of mastery students are demonstrating and how to address it if gaps exist. The Unit 13 Answer Key provides a "General Formative Assessment Rubric" that guides teachers to circle incorrect ideas and/or ideas on their responses and asks them to problem-solve how to correct their errors if students struggled to complete the formative assessment at the proficiency level.
- Materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned to learning goals. For example, students who are developing their reading fluency can read the lower Lexile measure version of the articles included in the unit printables. Digital materials offer a text-to-speech software feature that students can use to listen to questions in the assessments. In addition, the digital Student Edition's Unit Assessments labeling and grouping questions allow students to drag and drop answers instead of writing them in.

Studies Weekly Texas Science Grade 4

Indicator 7.1

Materials include guidance, scaffolds, supports, and extensions that maximize student learning potential.

1	Materials provide recommended targeted instruction and activities to scaffold learning for students who have not yet achieved grade-level mastery.	M
2	Materials provide enrichment activities for all levels of learners.	M
3	Materials provide scaffolds and guidance for just-in-time learning acceleration for all students.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials include guidance, scaffolds, supports, and extensions that maximize student learning potential.

Materials provide recommended targeted instruction and activities to scaffold learning for students who have not yet achieved grade-level mastery. Materials provide enrichment activities for all levels of learners. Materials provide scaffolds and guidance for just-in-time learning acceleration for all students.

Evidence includes but is not limited to:

Materials provide recommended targeted instruction and activities to scaffold learning for students who have not yet achieved grade level mastery.

- The materials embed recommended targeted instruction and activities for students who have not yet achieved mastery of the unit lesson plans. These materials include suggestions for optional differentiations at the end of the activity lesson plan. For example, in Activity 9, the differentiation provides a teacher suggestion to "Give students an outline for organizing information. You may also allow students to create an audio recording to communicate what they have learned." The materials also provide a lower Lexile version of student articles included in the weekly materials. For example, in Unit 19, a 630 Lexile (grade 3 level) of the article “Digging Into the Past: Part 1” is included for students who need it.
- The materials embed recommended targeted instruction and activities for students. Teacher lesson guides provide guidance to support students who may need assistance as they complete lesson activities. In Unit 19, Week 30, Activity 1, materials include teacher guidance for struggling students by modeling differentiated examples such as, "I think (part of the question) because (reason). I think this because (observation/prior knowledge)." Materials provide a modeling example: "I think the flower wilts because it didn't get enough water. I think this because when we went on vacation, we didn't water our plants, and the plants were all wilted when we got back."
- Materials provide recommended targeted instruction and activities to scaffold learning for students. Unit 21, Lesson Guide, “Optional Differentiation,” provides two levels of support: developing, "allow students to work with a partner to come up with their phenomenon questions and advanced, " Encourage students to think aloud, sharing their thought processes and connections to previous experiences leading to their questions. Prompt them to recall related phenomena, connecting their similarities to form questions."

- Unit 21, “Picture Walk” provides students with a graphic labeling traits of polar bears and the definition of the term inherited for students on the beginning level of language development. Unit 21, “Collaborative Learning” provides two texts. “Texas Organisms” contains pictures of different organisms that live in Texas. The second related text, “Texas Organisms and Information,” contains the same pictures with additional information about the organisms for students needing more support identifying traits.

Materials provide enrichment activities for all levels of learners.

- Teacher guidance materials include optional activities for unit elaboration or additional learning. For example, Unit 10 includes three optional extension activities to engage in the Elaborate step of the 5E model for science. These activities include reading an article about magnetism and electricity, creating a wire dancer to model change, motion, and energy transfer, or building a scribble bot to show the transformation of electrical energy into motion.
- In Unit 6, teacher guidance materials include an optional extension activity for further practice of the unit's content, including sorting the states of matter using advanced vocabulary not otherwise addressed in this unit. The materials provide several Project Time videos outlining extracurricular projects that students could complete as enrichment activities. Materials provide a single collection of 24 videos for grades 3-5. Video topics are related to units of study within the materials, such as the video “Invisible Ink” and Unit 6, “Invisible Matter.”
- Grade 5 Unit Lesson Guides provide extension activities as enrichment opportunities for all learners. For example, in Unit 20, students participate in “The Fittest Beak” activity simulating adaptations. Students act as finches and determine how much food they can pick up with their beaks.

Materials provide scaffolds and guidance for just in time learning acceleration for all students.

- Materials include wellness articles that provide teachers with just-in-time scaffolds as students engage with particular lesson materials. For example, Unit 7 focuses on goal-setting and how to choose goals that are specific, measurable, attainable, realistic, and timely (SMART goals). Additionally, in Unit 7, students draw on knowledge they have learned in the unit to ask questions and make predictions about the effects of a collision between a basketball and a tennis ball. Students collaboratively relay their questions and explanations to other concepts previously learned.
- The materials embed recommended targeted instruction and activities for students performing at an advanced level into the unit lesson plans. For example, Unit 14, Activity 2, includes an opportunity for students to research additional types of sedimentary rocks and draw a model of one they find most interesting.
- In Unit 16, the Lesson Guide states: “If students fail to identify any items that would not be easily recognized as made of or including plastic, point those out to students.” In Unit 16, Activity 2, students read an article about plastic waste. Students use the scaffolded “Plastic Waste Jigsaw Treemap” printable to organize their ideas.
- Materials provide scaffolds and guidance for just-in-time learning acceleration for all students. Unit 17, Teacher Edition, “Common Misconceptions” includes the misconception that "Predators are bad for ecosystems." The material includes a text, “Predator Poems,” stating, "In a healthy prairie ecosystem, Look closely and you may find, Quiet fox hiding in the grass, Out of sight and out of mind.

Studies Weekly Texas Science Grade 4

Indicator 7.2

Materials include a variety of research-based instructional methods that appeal to a variety of learning interests and needs.

1	Materials include a variety of developmentally appropriate instructional approaches to engage students in the mastery of the content.	M
2	Materials consistently support flexible grouping (e.g., whole group, small group, partners, one-on-one).	M
3	Materials consistently support multiple types of practices (e.g., modeled, guided, collaborative, independent) and provide guidance and structures to achieve effective implementation.	M
4	Materials represent a diversity of communities in the images and information about people and places.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials include a variety of research-based instructional methods that appeal to a variety of learning interests and needs.

Materials include a variety of developmentally appropriate instructional approaches to engage students in the mastery of the content. Materials consistently support flexible grouping (e.g., whole group, small group, partners, one-on-one). Materials consistently support multiple types of practices (e.g., modeled, guided, collaborative, independent) and provide guidance and structures to achieve effective implementation. Materials represent a diversity of communities in the images and information about people and places.

Evidence includes but is not limited to:

Materials include a variety of developmentally appropriate instructional approaches to engage students in the mastery of the content.

- Materials engage students in the mastery of the content through a variety of developmentally appropriate instructional approaches. For example, in Unit 18, the students watch the "Phenomenon Video," as they generate questions about the phenomenon. In Activity 2, students work with a collaborative group in an open-ended sorting task with pictures of organisms from a forest ecosystem, including bison, snowshoe hares, fungi, bacteria, and trees.
- Materials use a variety of developmentally appropriate instructional approaches, including but not limited to hands-on activities and collaborative learning. In Unit 7, Activity 2, students work in groups to plan, design, test, and improve a solution to the problem of a cup of hot liquid needing to be insulated to keep hands safe and stay warm. Students work in groups to wrap various materials around styrofoam cups of warm liquid and measure temperature to determine how well each insulates the cups. Students record their findings and conclusions in writing on a provided graphic organizer and temperature graph. Teachers monitor for gaps in understanding and misconceptions as students work.
- Unit materials include a variety of opportunities for hands-on learning, including creating or building models, conducting investigations, playing content-related games, formulating

questions, and seeking answers to those questions by reading articles and/or conducting research. For example, in Unit 12, Activity 5, students create a model to investigate and explain how weathering, erosion, and deposition affect a sidewalk. In Unit 17, the Teacher Instruction Page suggests preparing materials a week prior to the unit starting. This investigation includes a variety of materials to engage students in the mastery of the content.

Materials consistently support flexible grouping (e.g., whole group, small group, partners, one on one).

- The materials support a variety of instructional groupings. The materials provide guidance to teachers on when to use specific grouping structures based on the needs of students. For example, Unit 2, Activity 6, guides teachers to group students in groups of four for collaborative learning. In Unit 13, Activity 2, students explain the reasoning for their prediction in a group. In Activity 3, students gather data with a partner, and then with their group. Finally, students are asked to “Reflect & Connect” on their own.
- Materials incorporate flexible grouping consistently throughout the curriculum. In Unit 11, Activity 5, students observe how a heat lamp warms the water and causes evaporation in a whole group. In Activity 6, students work in collaborative learning groups to create water cycle diagrams, engage in vocabulary review, and discuss questions such as, "Could the water cycle continue if one step did not occur?" Following this, students independently write a detailed description of the water cycle in their student editions and explain how the steps connect. In Activity 8, students work in pairs to decide how to create a model of the water cycle and draw up a plan to do so.
- Unit Lesson Guides include a variety of flexible grouping options such as student-driven inquiry, whole group, collaborative learning, and independent work. For example, in Unit 4, Lava Lamps, students read the phenomena comic strip in pairs or small groups. During Student-Driven Inquiry, students observe an image and discuss questions in pairs. In Collaborative Learning, students conduct the mixture investigation in small groups and discuss. Students then read the article “Lava Lamps” and answer questions independently.

Materials consistently support multiple types of practices (e.g., modeled, guided, collaborative, independent) and provide guidance and structures to achieve effective implementation.

- The materials include a wide range of types of practices including collaborative, student-driven discussions, teacher-guided or modeled, and independent practice. For example, in Unit 4, Lava Lamps, students read the phenomena comic strip in pairs or small groups. During Student-Driven Inquiry, students observe an image and discuss questions in pairs. During Collaborative Learning, students conduct the mixtures investigation in small groups. As a whole group, students discuss whether the mass changed when the mixtures were created. Students then read the article “Lava Lamps” and answer questions independently.
- The teacher lesson plan provides guidance and structures to achieve effective implementation of various types of practice. For example, in Unit 6, Activity 2 guides the teacher to circulate among groups reminding students to use their best and safest judgment to create an impact and prompts listening comprehension by asking clarifying questions. In Unit 11, Activity 8, students work in pairs to decide how to create a model of the water cycle and draw up a plan to do so. Teacher guidance states: "As you circulate, encourage students to show respect to their partners. They should not turn down any ideas; they should try to build on all ideas by reworking them or combining them with other ideas. Provide assistance as necessary by asking questions,

such as: What type of model will you make?... How will you show that your steps are connected?"

- Materials consistently support multiple types of practices and provide guidance and structures to achieve effective implementation. For example, Unit 5, Activity 2, *Student-Driven Inquiry*, includes small group brainstorming, discussing questions in pairs, whole group closing, and progress to independent work in the next activity.

Materials represent a diversity of communities in the images and information about people and places.

- Materials represent a diversity of communities in the images and information. The *Introduction to the Texas Science Weekly 2nd-5th Grade* PDF states the goal of culturally responsive teaching within the lessons: "We strive to include abundant representations of children from diverse backgrounds. We also strive to point out children's and adults' contributions to their communities and to scientific discoveries." Real-world examples and connections throughout the materials represent a diversity of communities and places, including rural, urban, and suburban communities, cities, and states across the U.S., and countries around the world. Depictions of places emphasize community strengths, resources, and unique characteristics. For example, in Unit 4, Week 9 the student edition includes artistic graphics of two students of varying races testing magnetic attraction together. In Unit 11, the student materials depict people who appear to be African American and Hispanic and include both male and female characters.
- The Grade 4 materials include representations of children from diverse backgrounds within the phenomenon comic strips. Students bring culturally specific examples into the science conversation by sharing similar experiences after interacting with resources in the materials, reinforcing the need to solicit and respect perspectives from all cultures. For example, in Unit 16, Activity 3, students read an article about the Mohs Scale and learn about the German geologist Friedrich Mohs who designed the scale to determine the hardness of each type of rock.
- Ancillary field trip videos include diverse destinations in Texas, some of which students either have seen before or could possibly see in the future. In the video *Virtual Field Trip: Dinosaur Valley State Park,* students view images of real dinosaur tracks in Glen Rose, local to the Dallas-Fort Worth area. In the video *Virtual Field Trip: St. Augustine Alligator Farm Zoological Park,* students view a marshy ecosystem very different from Glen Rose that provides a habitat for modern-day animals similar to dinosaurs.

Studies Weekly Texas Science Grade 4

Indicator 7.3

Materials include listening, speaking, reading, and writing supports to assist emergent bilingual students in meeting grade-level science content expectations.

1	Materials include guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS.	M
2	Materials encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials include listening, speaking, reading, and writing supports to assist emergent bilingual students in meeting grade-level science content expectations.

Materials include guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS. Materials encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English.

Evidence includes but is not limited to:

Materials include guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS.

- Materials include guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS. The materials include the *Studies Weekly Strategies and Leveling for the ELPS* document, which provides a chart on how teachers can scaffold content for students of various English proficiency levels. The document includes the ELPS foundational skills of Listening, Metacognitive Thinking, Speaking and Problem Solving, Speaking, and Writing, as well as broader categories of Listening, Speaking, Reading, and Writing. For example, ELPS 4Fii focuses on reading grade-appropriate content-area text using visual and contextual support. Advanced High students may pre-read the text, create a few annotations, and choose supporting visuals. For Advanced students, teachers provide three to four annotation symbols, read independently, and share their annotations within a small group. Intermediate student support provides lower-level Lexile articles, and students chunk the text, restating what they have read after each chunk. For Beginners, teachers provide additional visuals, and students use symbols to show comprehension.
- Materials include guidance for linguistic accommodations. Teacher Lesson Plans for each unit include guidance about how the teacher can integrate linguistic accommodations for each English language proficiency level. For example, in Unit 4, Activity 5, students share their Claim-Evidence-Reasoning with a partner or small group. The resource indicates the aligned ELPS 3F, stating, "This is an opportunity for students to give information using content-based vocabulary during extended speaking assignments."

- Materials include guidance for linguistic accommodations commensurate with various levels of English language proficiency as defined by the ELPS. For example, the ELD Student Edition provides support for all levels of English language learners. The Unit 13 beginner activity includes a picture walk of new vocabulary. The Unit 13 intermediate activity includes having students explore words and ideas by "Draw(ing) a line to the five different climate zones on the map." The activity matches the climate description to the area on the map using matching colors. The advanced activity is a Close Reading task, directing students to read the paragraph and discuss questions with a partner. The advanced high provides an “Apply What You Learned,” providing students the choice of demonstrating, researching and speaking, writing, or exploring. The advance-advanced high tasks give the students the least amount of support, providing sentence stems for students to complete.
- Unit Guides integrate and embed ELPS strategies in the lesson plans to scaffold and provide additional language proficiency support. For example, in grade 4, Unit 12, Activity 3, the lesson guide suggests teachers allow students to use cognates in their native language to describe or draw connections to erosion during the vocabulary review. Materials include a “Studies Weekly Strategies and Leveling for the ELPS” document providing support for English language learners of all levels. For example, to support Speaking ELPS 3Gi and 3Gii, express opinions and ideas ranging from communicating single words and short phrases to participating in extended discussions on a variety of social and grade-appropriate academic topics, the Intermediate Grade-Leveling Strategy suggests that teachers strategically pair students with proficient peers to create a version of the anchor chart to keep at their desks that contains their first language and English as well as limit text to single words, and short, simple phrases.

Materials encourage strategic use of students’ first language as a means to linguistic, affective, cognitive, and academic development in English.

- Materials provide a means to linguistic, affective, cognitive, and academic development in English. For example, in *The Introduction to Texas Science Weekly K-5* document, the various English Language Proficiency Standards (ELPS) support provides context such as, "Not only are ELPS integrated throughout every unit as shown by the Standards Coverage chart and point of use references, but there are several additional resources to support students and teachers. The Texas English Language Development (ELD) slides, customized for each unit, provide additional linguistic support for the whole class or small groups." The resource describes additional teacher tools such as the Strategies and Leveling for ELPS with strategies for each proficiency level throughout the curriculum.
- Materials encourage strategic use of students’ first language. For example, the Studies Weekly Strategies and Leveling for the ELPS provides teacher support for scaffolding content for students with various English proficiency levels, including suggestions on when first language use is appropriate. The materials suggest that teachers may allow students to draw a picture or use their first language when responding to support ELPS 1Di, speaking, and problem-solving using learning strategies. An additional example includes an ELPS Strategies and Leveling document encouraging the strategic use of students' first language in the Additional Teacher Actions section, "Allow students to use their first language,” "Allow extra processing and think time,” and "Frequently model pronunciation, gestures, and verbal cues,” "allow students to share a personal connection using the word in English, as well as their own language," and "prompt them to use first-language cognates as a guide when searching. Include instances to describe figurative language."

- Materials encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English. For example, to support ELPS 1Ai and use prior knowledge to understand meanings in English, materials suggest that teachers may pre-teach vocabulary with visuals and translations to students' first language. Additionally, to support ELPS 3Gi and 3Gii, express opinions and ideas ranging from communicating single words and short phrases to participating in extended discussions on a variety of social and grade-appropriate academic topics, the "Intermediate Grade-Leveling Strategy" suggests that teachers strategically pair students with proficient peers to create a version of the anchor chart to keep at their desks that contains their first language and English as well as limit text to single words, and short simple phrases.

Studies Weekly Texas Science Grade 4

Indicator 7.4

Materials provide guidance on fostering connections between home and school.

1	Materials provide information to be shared with students and caregivers about the design of the program.	M
2	Materials provide information to be shared with caregivers for how they can help reinforce student learning and development.	M
3	Materials include information to guide teacher communications with caregivers.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials provide guidance on fostering connections between home and school.

Materials provide information to be shared with students and caregivers about the design of the program. Materials provide information to be shared with caregivers for how they can help reinforce student learning and development. Materials include information to guide teacher communications with caregivers.

Evidence includes but is not limited to:

Materials provide information to be shared with students and caregivers about the design of the program.

- The materials provide the teacher with resources to inform caregivers about the curriculum students will experience throughout the year. For example, the one-page document “How to Use Studies Weekly” describes the overall instructional design and how the materials are organized, the emphasis on hypotheses, phenomena, science and engineering processes, and student-driven inquiry. The document provides context for the teacher regarding usage with statements such as, "As you know, it's important to keep caregivers informed and supported through the school year so that they can continue the learning process at home."
- The materials provide resources for parents and caregivers. For example, while not specifically geared for families, the teacher edition document “How to Use Studies Weekly” provides details about various components of the program that may be of interest to parents, such as instructional time and aligned Texas Essential Knowledge and Skills (TEKS). The document includes information such as how each grade is organized by units that consist of one or two weeks of instruction that align to a single standard. The materials also outline how the 3-dimensional instructional design aligns with the Scientific and Engineering Practices (SEP) and Recurring Themes and Concepts (RTC) and is integrated into the science lesson plans.
- Materials provide information to be shared with students and caregivers about the design of the program. For example, the Unit 13, “Student Support Resources Home Learning Letter,” states, "To help support your child in understanding this concept we suggest the following: Have your child draw a model to show how producers use sunlight to make their own food,” and “Discuss with your child the difference between the air we need and the air plants need. We breathe in oxygen every time we take air into our lungs. Plants take in carbon dioxide, a gas in the air,

through their leaves. Plants use carbon dioxide, water, minerals, and vitamins along with energy from the sun to make food."

Materials provide information to be shared with caregivers for how they can help reinforce student learning and development.

- Materials include a “Home Learning Letter” for each unit of instruction to share with caregivers. The letter shares information regarding the unit objectives, home activities to continue learning, unit vocabulary, possible student misconceptions, and suggested questions to help caregivers continue the classroom conversation. The end of the “Home Learning Letter” suggests the caregiver check the student’s edition of Studies Weekly, then go online for more content information.
- The materials include a “Tools to Help You Communicate with Parents” document explaining that each unit includes a “Home Letter,” which is the primary means of communication for parents specific to each week’s content. For example, in grade 4, Unit 9, Seasons in the Sun, the “Home Learning Letter” explains the learning objectives that students should meet by the end of the unit, including, "I can collect and analyze data to identify patterns of change in temperature within a season and across other seasons." The “Home Learning Letter” includes methods for the parent to support the child in understanding the concept, such as, "Have your child create a book to explain seasonal patterns to a younger child like a kindergartener. Have them start by creating one page per season." The letter includes other ideas for this activity and other activities related to unit concepts. The letter includes terms and definitions parents use to support student mastery of the unit concepts.
- The materials include a “Student Support Resources Home Learning Letter” for each unit that describes what students are learning at school and ways to assist this learning at home. The letter explains unit vocabulary and possible misconceptions and provides suggested questions. For example, in Unit 7, the letter outlines that students will investigate cause-and-effect relationships to identify conductors and insulators and suggest a way to help at home by helping children test different materials and how well they insulate an ice cube. The materials emphasize that parents should use words such as *electrical energy*, and help students understand that cords are not made of only plastic.
- The materials provide information to be shared with caregivers. For example, the Unit 13, “Student Support Resources Home Learning Letter,” states that

  > “(To) help support your child in understanding this concept we suggest the following: Have your child draw a model to show how producers use sunlight to make their own food. Producers, or plants, collect and trap the light energy from the sun with their leaves. Plants then use this energy to create food. This food is needed for the plant to grow and survive. If plants do not receive enough sunlight, they do not have enough energy to make food that supports their growth and survival. Discuss with your child the difference between the air we need and the air plants need. We breathe in oxygen every time we take air into our lungs. Plants take in carbon dioxide, a gas in the air, through their leaves. Plants use carbon dioxide, water, minerals, and vitamins along with energy from the sun to make food. Check out a book from a library about hydroponics and discuss with your child how plants are grown without soil in a controlled environment.

Studies Weekly Texas Science Grade 4

Materials include information to guide teacher communications with caregivers.

- The materials provide information to guide teacher communication with caregivers. For example, in the video titled “Reports,” teachers can access *Weekly Assessment Reports and Progress Reports* that show student achievement and progress. Teachers can also view a line graph of progress to view student performance on reading comprehension questions from science articles. These reports guide teachers in how and what to include in parent and caregiver communication.
- The materials include reminders for teachers to utilize the unit “Home Learning Letters” for ongoing parent and caregiver communication as a tool for the home-school connection. For example, in grade 4, Unit 6, the lesson plan includes the “Energy Transfer: Home Letter “as a reminder for teachers to print and share this resource with caregivers. The “Student Support Resources” explains, "It provides information about the design of the program and how caregivers can reinforce student learning and development."
- Within the “Training” section of the materials, videos guide parents on aspects of the program of interest and help teachers navigate these features. In the video titled “What's New Webinar: Introducing the New Explore Science 3-5 Curriculum,” teachers access further detail about how science learning has changed and information about the Science and Engineering Practices (SEP) and Recurring Themes and Concepts (RTC) that can provide more details to help families understand what their students are learning.
- The Online Boarding Guide provides a video detailing the different reports of online student activity available to the teacher. For example, teachers hover over a score bar on the Weekly Assessment Score report to view a particular student’s percentage. Although not directed toward families, teachers use this information to communicate student progress to caregivers.
- Materials include information to guide teacher communications with caregivers. For example, Unit 17, Lesson Plan Student Support Resources, includes the “Producers Make Food: Home Learning Letter” for context to be "a helpful resource to guide teacher communication. It provides information about the design of the program and how caregivers can reinforce student learning and development." Unit 17 “Printables” include flashcards for students of key vocabulary terms in both English and Spanish that can be provided to guide communications with caregivers. For example, the Unit 17 key terms are in English, *carbon dioxide,* and Spanish, *dioxido de carbono*.

Studies Weekly Texas Science Grade 4

Indicator 8.1

Materials include year-long plans with practice and review opportunities that support instruction.

1	Materials are accompanied by a TEKS-aligned scope and sequence outlining the order in which knowledge and skills are taught and built into the course materials.	M
2	Materials provide clear teacher guidance for facilitating student-made connections across core concepts, scientific and engineering practices, and recurring themes and concepts.	M
3	Materials provide review and practice of knowledge and skills spiraled throughout the year to support mastery and retention.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials include year-long plans with practice and review opportunities that support instruction.

Materials are accompanied by a TEKS-aligned scope and sequence outlining the order in which knowledge and skills are taught and built into the course materials. Materials provide clear teacher guidance for facilitating student-made connections across core concepts, scientific and engineering practices, and recurring themes and concepts. Materials provide review and practice of knowledge and skills spiraled throughout the year to support mastery and retention.

Evidence includes but is not limited to:

Materials are accompanied by a TEKS aligned scope and sequence outlining the order in which knowledge and skills are taught and built into the course materials.

- Materials include a cohesive scope and sequence that outlines how science knowledge and skills are taught and built in the materials over the course.
- In the Teacher's Edition within the Publication Resources, a "Scope and Sequence" document outlines the order in which knowledge and skills are taught and built into the course materials. The scope and sequence includes the standards and weekly issue aligned with grade-level standards. All unit topics of study correspond to core ideas in the TEKS.
- The Teacher's Edition includes a Correlation Chart outlining the TEKS and/or ELPS, component title, resource type, and audience for each item aligned to standards. The Correlation Chart also details the specific pages, location description, and a citation link to materials for teacher access to the materials.
- The Correlation Chart reflects how concepts are taught and built over the units of instruction and spiraled throughout the year. For example, standard 4.11.G.i appears in the Student Edition in Activity 10 of Unit 6 as a phenomenon explanation, in Unit 8 during the "Light and Thermal Energy Challenge", and again in Units 11 and 12.
- Materials found within the Teacher's Editions, under "Publication Resources", include a "Horizontal and Vertical Alignment" document connecting TEKS at each grade level. For example, for the strand "Force, Motion, and Energy," TEKS 7A is covered in Unit 5 in third grade and in Unit 7 in fifth grade.

Studies Weekly Texas Science Grade 4

Materials provide clear teacher guidance for facilitating student made connections across core concepts, scientific and engineering practices, and recurring themes and concepts.

- The materials provide teacher clarity in understanding how activities and experiences connect concepts, science and engineering practices (SEP), and recurring themes and concepts (RTC). Materials also include a podcast to support teacher topic background, answer keys, and lab guides. The lab guides include materials lists, investigation set-up information, suggestions for the teacher to test out the lab materials before students, troubleshooting suggestions, and clean-up directions.
- Each unit includes introductory materials about the unit objectives for teachers. Teachers access bulleted information about SEP and RTC clarifying student expectations within the unit. For example, in Unit 17, “Engineering Design: Producers Make Food”, information on SEPs such as "Develop Explanations and Propose Solutions” and RTCs such as “energy and matter” and “stability and change” are outlined for teachers.
- Some lessons include opportunities for students to make connections across core concepts, SEP, and RTC. For example, in Unit 8 “Electric Paths”, after reading an engagement graphic text about heat lamps, students complete an activity. When asked to write a question about what they find most interesting on the topic of electricity, students also label the corresponding SEP. Additional opportunities for connections to Reading/Language Arts (RLA) and other RTCs are included when students identify a cause-and-effect relationship connected to their question about the real-world situation presented.
- The Training and Resources tab includes videos, audio, and pdf documents to support teacher navigation through the product. The teacher edition includes printables of all resources needed for each section/activity within the Unit, including related media videos. For example, in Unit 11, “The Water Cycle: Part A”, the related media resource shows the video *The Water Cycle: Phenomenon Video*. Teacher support resources include topic background information, answer keys, reading comprehension questions, Unit assessments, and performance tasks.

Materials provide review and practice of knowledge and skills spiraled throughout the year to support mastery and retention.

- The materials include intentional practice and spiraling of previously taught knowledge and skills from earlier lessons/grade levels and the current lesson’s science knowledge and skills. The Teacher Materials include a “Vertical and Horizontal Alignment” document providing teacher guidance for the introduction of SEP and RTC, spiraled resources, facilitating student review, and practice throughout the year. For example, in fourth grade, Unit 4, the new concept is the conservation of matter. The connected and spiraled concept is "Physical properties can change when substances are combined."
- The assessment materials support multiple opportunities for spiral review and demonstration of content mastery. For example, in the Unit 10 “Assessment Map”, students demonstrate mastery of the SEP to develop and use models, in performance tasks 1A, 1B, and 1D. Students demonstrate their understanding of the RTC in all nine performance tasks for the Unit.
- The *Citations to the TEKS and ELPS* teacher resource details how standards are spiraled throughout the year and across units. Various teacher links provide multiple resources for students to practice skills or for the teacher to reteach a prior skill. For example, students first demonstrate understanding of TEKS 4.2.C.ii, "Learning new expressions heard during classroom instruction and interactions" as they practice the skills with the teacher as a scaffold prior to

reviewing the student weekly lessons. In Unit 5, students engage in whole-group learning and practice using new expressions. Finally, during Unit 14, students apply the expressions within "Student Driven Inquiry."

- Materials provide opportunities for review and practice through the reading of articles, conducting labs, and creating/answering questions. Students read articles summarizing TEKS from the unit, and teachers use these articles to review or preview units. For example, after Unit 11, "The Water Cycle", students read or listen to an article explaining how the water cycle works.

Studies Weekly Texas Science Grade 4

Indicator 8.2

Materials include classroom implementation support for teachers and administrators.

1	Materials provide teacher guidance and recommendations for the use of all materials, including text, embedded technology, enrichment activities, research-based instructional strategies, and scaffolds to support and enhance student learning.	M
2	Materials include standards correlations, including cross-content standards, that explain the standards within the context of the grade level.	M
3	Materials include a comprehensive list of all equipment and supplies needed to support instructional activities.	M
4	Materials include guidance for safety practices, including the grade-appropriate use of safety equipment during investigations.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials include classroom implementation support for teachers and administrators.

Materials provide teacher guidance and recommendations for the use of all materials, including text, embedded technology, enrichment activities, research-based instructional strategies, and scaffolds to support and enhance student learning. Materials include standards correlations, including cross-content standards, that explain the standards within the context of the grade level. Materials include a comprehensive list of all equipment and supplies needed to support instructional activities. Materials include guidance for safety practices, including the grade-appropriate use of safety equipment during investigations.

Evidence includes but is not limited to:

Materials provide teacher guidance and recommendations for use of all materials, including text, embedded technology, enrichment activities, research based instructional strategies, and scaffolds to support and enhance student learning.

- The materials include overview documents to support teachers in understanding how to use all materials and resources as intended. Materials are organized in a way that facilitates ease of implementation and use, including the assessing and storing of materials.
- The online materials include additional tools teachers may access for increased support for specific strategies such as Think, Pair, Share, or 5E Model. Teachers reach these guides by using the Training and Resources button on the universal access sidebar.
- Materials include a Unit Guide in the online teacher materials Table of Contents. The Unit Guide is organized by week, covering the objectives, including text, technology, enrichment, instructional strategies, and scaffolds. For example, in Unit 1, teachers access a summary of activities and guiding implementation. Teachers access a list of materials for the unit and three content videos. Guidance materials suggest several supports for extensions. The materials include leveled Lexile addressing differentiation for students reading below grade level.
- Unit 2 materials include a teacher podcast, *The Junk Drawer: Topic Background Information*, to build teacher content knowledge, print materials, *The Junk Drawer: Reading Comprehension*

Questions to help students assess their comprehension of an article and student project, *The Junk Drawer: ELD Lesson*, containing language scaffolds for unit information.

- Materials for Unit 4, "Lava Lamps" lesson guide provides scaffolds for the developing student and advanced options for enrichment. For example, the developing student is provided sentence stems to support comprehension while the advanced learner conducts further investigations to answer the investigation question that asks about doubling the amount of soil.
- For grade 4, Under the "Training & Resources," the "Onboarding" section provides short video tutorials to facilitate the implementation process of each resource. For example, the *What Comes in the Box* video tutorial explains the materials included and gives suggestions on how to organize and file the student editions for easy storage and access during the year.

Materials include standards correlations, including cross content standards, that explain the standards within the context of the grade level.

- The materials include science standards correlations for lessons units, lessons, or activities within the context of the grade level or course in teacher documents and online resources. The materials include cross-content standards for ELA, math, and social studies within the Teacher's Guide to lessons.
- The *Teacher Edition* includes a weekly "Standards Coverage" chart. This chart includes cross-content standards addressed within the weekly lessons. For example, in Unit 3, lessons include Math TEKS 4.1C "Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems." in Activities 3 and 4.
- The materials include a correlation chart outlining the TEKS or ELPS and the component title, type, and audience for each item representing the standard. This chart also details the specific pages, location description, and a citation link to materials so the teacher can quickly access the materials. The chart details topics being spiraled throughout the year. For example, ELPS 11.G.i appears in the student edition in Unit 6, Activity 10 in "Phenomenon Explanation," then in Unit 8 during the "Light and Thermal Energy Challenge." This standard is taught again in Units 11 and 12.
- In the "Unit/Weekly Guidance" documents, teachers access sidebar information about connections with other subject areas. In Unit 13, "Weather Patterns Over Time," the materials connect the science content objectives with ELAR TEKS, including 4.6H, "Synthesize information to create new understanding," and ELAR TEKS 4.7F, "Respond with newly acquired vocabulary as appropriate."
- The *Teacher Edition* includes a Correlation to the TEKS and ELPS document that references how concepts are taught and built over the units of instruction. For example, ELPS 1.A.i is taught within Unit 2, Activity 1, "Form a Hypothesis", and Unit 6, "All Sections."
- Within the *Teacher Edition*, each unit includes a "Standards Coverage" chart with cross-content standards correlations. For example, in Unit 3, "Mixtures and Solutions," ELAR TEKS 4.6E asks students to "Make connections to personal experiences, ideas in other texts, and society," and ELPS 3:D "Requires students to speak using grade-level content area vocabulary in context to internalize new English words and build academic language proficiency."
- Materials for grade 4 include a "Correlation to the TEKS and ELPS" chart in the *Teacher Edition* listing the spiraled opportunities for each TEK Standard. For example, ELPS 1.A.ii appears in Unit 2, Activity 1, "Phenomenon Comic," and Unit 3, Activity 1, "Phenomenon Comic."

Studies Weekly Texas Science Grade 4

Materials include a comprehensive list of all equipment and supplies needed to support instructional activities.

- The materials include an appendix with a comprehensive list of all equipment and supplies needed to support students, teachers, and administrators during instructional activities.
- The *Teacher Edition* of the online materials in each unit contains downloadable files needed for all tasks or activities within the unit. For example, the teacher edition contains videos or audio recordings, activity guides for labs or demonstrations, and a list of materials that will be used in student activities. These guides also include a list of materials that will be used in the activity. For example, in Unit 4, "Lava Lamps", the teacher uses the "Matter in Mixtures: Teacher Instructions" to gather the materials for this experience.
- Weekly lesson plans contain a sidebar for each activity listing materials needed for that lesson. For example, teachers easily scan down the left side of the lesson pages to ready all materials for the week. During Activity 1, teachers show the *Energy Transfer Phenomenon Video* and use *Asking Phenomenon Question*s printables. For Activity 2, teachers use an image of an *Impact Ball* and three prepared *Energy and Collision* stations.
- In the *Teacher Edition*, each unit contains a detailed lesson plan with the needed materials listed at the top of each new activity lesson plan. For example, Unit 2, Activity 2, "Solid, Liquid, or Gas", lists pre-assembled junk drawers and hand lenses as the materials needed.

Materials include guidance for safety practices, including the grade appropriate use of safety equipment during investigations.

- The materials provide teacher and student guidance for safety practices and grade-appropriate use of safety equipment during investigations under Texas Education Agency Science Safety Standards.
- The unit materials include numerous opportunities for students to learn about safety practices. In Unit 1, in the student Support Resources, materials include a video about staying safe while doing science. Students then reflect on what they heard in the video and connect it to their future explorations in Activity 2.
- The unit materials include numerous opportunities for students to learn about safety practices. The materials in Unit 1, include the article "Tools and Safety," which investigates what tools scientists use and the purpose of each. In Unit 5, Activity 3, before engaging in various magnet types, the teacher reviews applicable rules from the general lab safety standards document in Unit 1. Students revisit these safety standards in Unit 8 before exploring electrical circuits. In Unit 18 students review the "First Aid Safety" section in the *Texas Science Safety Standards* document before engaging in an activity about food webs.
- In all grade levels, Unit 1 contains a lesson on "Tools and Safety" and a "Lab Safety Poster" that teachers display. Teachers show two videos, *Let's Investigate: Safety First* and *Science Safety*, and read an article, "Tools and Safety," with students.
- Lesson plans including hands-on activities include a *Teacher Note* section at the beginning of the lesson plan that guides safety practices during the investigations. For example, Unit 4, Activity 2, "Lava Lamps," reminds teachers to review applicable rules from *General Laboratory Safety Rules* in the *Texas Science Safety Standards* document.

Studies Weekly Texas Science Grade 4

Indicator 8.3

Materials provide implementation guidance to meet variability in program design and scheduling.

1	Materials support scheduling considerations and include guidance and recommendations on required time for lessons and activities.	M
2	Materials guide strategic implementation without disrupting the sequence of content that must be taught in a specific order following a developmental progression.	M
3	Materials designated for the course are flexible and can be completed in one school year.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials provide implementation guidance to meet variability in program design and scheduling.

Materials support scheduling considerations and include guidance and recommendations on required time for lessons and activities. Materials guide strategic implementation without disrupting the sequence of content that must be taught in a specific order following a developmental progression. Materials designated for the course are flexible and can be completed in one school year.

Evidence includes but is not limited to:

Materials support scheduling considerations and include guidance and recommendations on required time for lessons and activities.

- The materials include support for specific scheduling considerations, with guidance for covering required science content for the grade level/course within a variety of schedules.
- The materials include a training and resources section and a webinar that overviews the new science curriculum for grades 2-5. In this webinar, the presenter explains an overview of the structure of the curriculum and clarifies that each unit represents 1-2 weeks of instruction and about 3.75 hours of content per week about 45 minutes of instruction per day. Each unit focuses on 1-2 TEKS per week using the weekly student publication in a newspaper format. All weekly lesson plans list the time required for each activity at the top of the lesson, in a section heading along with the title.
- Each unit contains a “Unit/Weekly Guidance” document, in which teachers access weekly and daily lessons. Each weekly plan contains a table listing each daily lesson and the estimated time for completion. In addition, teachers access a list of optional activities which also provides times. For example, in Unit 6, “Energy Transfer, activity time for Energy and Collisions” is listed as 45 minutes, and optional activities, such as “Waves Transfer Energy” is listed as 30 minutes.
- Teacher guidance materials in the *Teacher Edition* include an “Activity Summary Chart” which indicates the recommended time allotted for each day's activity. Information presented on this chart lists the Day for the activities, the lesson time allotted, the 5E stage, and the page number. For example, in Unit 1, Week 1, Day 2, the “Tools and Safety” activity is in the Explore section and scheduled for 45 minutes. In addition, each unit includes a lesson plan providing the recommended time for each instruction at the very top of each activity. For example, Unit 6, Lesson Plans suggest 45 minutes for Activity 1, ”Phenomenon Introduction.”

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Materials guide strategic implementation without disrupting the sequence of content that must be taught in a specific order following a developmental progression.

- Materials provide guidance for strategic implementation that ensures the sequence of content is taught in an order consistent with the developmental progression of science.
- Materials found in the *Teacher's Edition* section, within "Publication Resources", include a scope and sequence outlining the order in which knowledge and skills are taught and built into the course materials. The beginning of each unit lists the TEKS and objectives and the week when it's covered. For example, Unit 9, "Earth and Space" covers TEKS 4.9A, and Unit 10 covers 4.9B.
- Materials found in the *Teacher's Edition* section, within the "Publication Resources," include a scope and sequence outlining the order in which knowledge and skills are taught and built into the course materials. The beginning of each unit lists the TEKS and objectives and the week when it's covered. For example, Unit 9, "Earth and Space" covers TEKS 9A, and Unit 10 covers 9B.
- Within each grade level scope and sequence, core concepts are organized in alignment with the TEKS and reflect a systematic sequence of skills from more basic to more complex. In fourth grade, students learn about foundational ideas in Unit 1, "Introduction to Science and Engineering." In Unit 2 and subsequent units, standards progress from simpler skills, such as students classifying and describing physical properties of matter, then investigating a variety of mixtures and solutions, to demonstrating that matter is conserved in mixtures like soil and water.
- Unit lesson plans include differentiation based on student needs with the strategies in call-out boxes. The call-out boxes are located near the formative assessment notes for the teacher. The teacher can consider how students respond to the daily formative assessment task and then consider if students would benefit from using the differentiation options to either reteach, scaffold, or accommodate their current lesson, or extend the next day's activity. In Unit 2, the formative assessment invites students to grade themselves using a rubric to check proficiency with the success criteria. The materials include optional differentiation strategies such as grouping students to work together and collaboratively developing ideas with a sentence stem or explaining how the preliminary steps for their investigation align with the ideas they craft.
- Lessons are organized consistently throughout the program supporting student learning from more basic understandings to more complex ideas. For example, in Unit 12, students read a phenomenon comic strip about a sidewalk that is broken. Following this, students generate and share their ideas about how weathering and erosion are connected to the breakdown of the sidewalk.

Materials designated for the course are flexible and can be completed in one school year.

- The materials include units, lessons, and activities for a full year of instruction. The materials guide adjusting to local time and scheduling constraints.
- The *Scope and Sequence* document in the *Teacher Edition* section online details how the teacher may accomplish all units of study within the course of the regular school year across 32 weeks of instruction. The materials allocate 4 weeks of flex into the schedule for either extension, reteaching, or increasing prior knowledge.
- Under the *Teacher Edition*, the "Publication Resources" includes a Table of Contents Chart listing 32 weeks of instruction covering the Science TEKS. These are organized by Introduction to Science and Engineering, Matter and Energy, Force, Motion, and Energy, Earth and Space, and

Organisms and Environments. Unit 21 is titled “Year in Review” and includes optional materials to extend the learning.

- In the *Teacher Edition,* teachers reference a table of contents guide document. Each unit includes a chart about how many weeks it encompasses and how much time per week to plan for the content. For example, Unit 5 represents Weeks 9 and 10 with each week's content representing 3.75 hours or about 45 minutes per day, if the teacher is teaching 5 days a week.
- Online materials include a *Help Center* providing an *Onboarding Guide* including instructions for *How to Reorder/Move Units, Weeks & Articles*. For example, the teacher may drag and drop units, weeks, and articles in the Table of Contents or move a week to another unit.
- The materials include a weekly plan containing a table listing five daily 45-minute lessons. In addition, teachers access a list of optional activities, each with a suggested time. For example, in Unit 6, “Energy Transfer,” teachers complete lessons such as “Energy and Collisions” for 45 minutes and choose optional activities such as “Waves Transfer Energy” for 30 minutes.

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Indicator 9.1

The visual design of materials is clear and easy to understand.

1	Materials include an appropriate amount of white space and a design that supports and does not distract from student learning.	Yes
2	Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting.	Yes
3	Materials include digital components that are free of technical errors.	Yes

Not Scored

The visual design of materials is clear and easy to understand.

Materials include an appropriate amount of white space and a design that supports and does not distract from student learning. Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. Materials include digital components that are free of technical errors.

Evidence includes but is not limited to:

Materials include an appropriate amount of white space and a design that supports and does not distract from student learning.

- Materials include an appropriate amount of white space and a design that supports and does not distract from student learning. For example, teacher materials such as lesson plans, table of contents, and assessment answer keys include appropriate margins and adequate white space. The materials utilize subheadings in bold font and follow a logical progression. The Student Editions begin with a Phenomenon, phenomenon graphic, phenomenon introduction, and activities with “Reflect & Connect” opportunities. Each phenomenon ends with an activity that has the student explain the phenomenon.
- Materials are designed in a way that does not distract from student learning. For example, white space is used strategically on the Student Edition pages in combination with contrasting colors and page borders to attract the eye yet not interfere with the content. The unit title, unit number, and week number corresponding to each unit are consistently displayed in the same place, using the same size style and font, providing easy identification for the student.
- Online materials are broken down with one activity on screen at a time. The viewer can access the subheadings at the top of the page to help with navigation between activities. The pages also include a “Next Article” or “Previous Article” button in large font at the bottom of the page to support the student in navigating between activities.
- Materials include a design that supports and does not distract from student learning. For example, the Teacher Edition materials follow the same format for each unit. Each Lesson Plan contains a unit objective, activity summary, standards coverage, materials list, teacher support resources, prior knowledge, and student edition preview. The Student Edition materials are separated with headers such as activity numbers to help guide the student through the materials. Within the activities, the pages are broken into tasks by task headings using colored

blocks to divide tasks. The materials provide Teacher Edition and Student Edition slides to support student learning. Premade slides contain enough white space and avoid being crowded with too much information on one slide.

Materials embed age appropriate pictures and graphics that support student learning and engagement without being visually distracting.

- Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. Units introduce the phenomenon through a comic strip, engaging students from the very beginning using age-appropriate characters relatable to students and background settings matching the topic or content presented. Characters are presented in a fun way, showing facial expressions and helping students make inferences about the scenario.
- Materials incorporate a variety of age-appropriate illustrations and real-life pictures of places, animals, and objects within each unit. For example, the grade 4 digital Student Edition, Unit 20, Activity 2 includes an illustration of two different weathered rocks and a picture of a weathered rock formation in Arches National Park. In Unit 21, the Student Edition includes realistic images to support learners in comparing the traits of houseplants, flamingos, soybeans, and humans.
- Materials embed age-appropriate pictures and graphics. For example, the online materials include student visuals and graphics to support their understanding of the various activities for the unit. In Unit 11, The Water Cycle, the online materials include the same comic about a student swimming in a river as the printable edition. The image appears in full color and is read easily on screen. The directions remind the students to write their responses in the interactive notebook, and a visual of a student writing in a journal is provided to support understanding of this step.
- The materials consistently present SEP in a student-friendly, organized comic format. Phenomenon comics appear at the beginning of the student materials, and subsequent activities are organized consecutively by number. Activity numbers and names are listed in a larger font across the student page. Provided graphic organizers connect to the teacher's lesson plans and focus step-by-step on activity and unit learning objectives without including extraneous information.

Materials include digital components that are free of technical errors.

- Materials include digital components without technical errors. For example, the online Help Center includes an information page titled "How to Monitor Student Article Questions." This document guides teachers to click on a link to learn more about what happens when students answer article comprehension questions incorrectly. The link successfully accesses the resource.
- Teacher answer keys contain accurate content information. For example, in Unit 15, Energy Use and Conservation, students explain why energy resources are important to modern life. Teacher answers include correct responses that align with current scientific knowledge (energy resources power homes, and appliances).
- Student online materials operate effectively with no errors. Videos and audio files play without lag time, and visuals load without errors. Links function properly for rubrics within the standards alignment resource and teacher tools.

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Indicator 9.2

Materials are intentionally designed to engage and support student learning with the integration of digital technology.

1	Materials integrate digital technology and tools that support student learning and engagement.	Yes
2	Materials integrate digital technology in ways that support student engagement with the science and engineering practices, recurring themes and concepts, and grade-level content.	Yes
3	Materials integrate digital technology that provides opportunities for teachers and/or students to collaborate.	Yes
4	Materials integrate digital technology that is compatible with a variety of learning management systems.	Yes

Not Scored

Materials are intentionally designed to engage and support student learning with the integration of digital technology.

Materials integrate digital technology and tools that support student learning and engagement. Materials integrate digital technology in ways that support student engagement with the science and engineering practices, recurring themes and concepts, and grade-level content. Materials integrate digital technology that provides opportunities for teachers and/or students to collaborate. Materials integrate digital technology that is compatible with a variety of learning management systems.

Evidence includes but is not limited to:

Materials integrate digital technology and tools that support student learning and engagement.

- Materials integrate digital technology and tools through the online student edition, student response and review opportunities, and online assessment options. Students have online versions of the printed Student Editions, which include videos, podcasts, and interactive response options. For example, in Unit 15, Energy Use and Conservation, teachers can share the topic background information podcast with students to build student knowledge about the unit. The unit materials include an “Energy Resources: Phenomenon” video and a podcast about energy resources. The teacher may show these as part of a whole group lesson or may assign them to students by adding them to the student edition online.
- The materials provide digital technology and tools that support student learning and engagement. For example, students access digital materials that are engaging and student-friendly, with a colorful, comics-inspired weekly phenomenon that is accompanied by student-led questioning and inquiry. Students use the digital materials to complete activities as they work through the program, which includes fillable question blanks, clickable images, video, and audio files.
- The program uses gamification to encourage additional practice. Students collect coins as they progress through activities and play games such as crosswords, the Unit 15 “Energy Use Game,” and “Misspilled,” for vocabulary and spelling practice, and accumulated coins are displayed to add motivation.

- Materials integrate digital technology and tools that support student learning and engagement. The activities embed short video clips throughout the activities within the units that provide brief explanations of the content and show relevant connections to the real world. The videos are short and engaging as they include visuals connecting the content to the real world. For example, Unit 5, Activity 3, Moon Phases Explore More, includes two videos, “Moon Orbits” and “Earth and Moon Phases,” to enhance student learning.

Materials integrate digital technology in ways that support student engagement with the science and engineering practices, recurring themes and concepts, and grade level content.

- Materials integrate digital tools to support student engagement with science and engineering practices (SEP). For example, Unit 7, Activity 5, includes structure and specific questioning for students as they work through the planning and creative steps of making a plan for their task. Students answer specific questions and can save and revise their responses to questions such as, "Does your solution aim to solve both engineering problems? Yes/No, Explain why not," rather than just providing a box labeled "Plan."
- Materials integrate digital technology in ways that support student engagement with science and engineering practices, recurring themes and concepts, and grade-level content. The materials include videos that demonstrate grade-level content for students. For example, in Unit 11, the “Student Support Resources” include a timelapse video demonstrating water evaporating from a sidewalk.
- The materials include a text-to-speech software feature students can use to listen to the questions within the assessments. Students who may have difficulty writing may type in the answers in the Digital Student Edition. In addition, questions requiring labeling and grouping allow students to drag and drop answers instead of writing them in. The material also allows for customization in the content. The Unit 11 Unit Assessment enables teachers to add or modify existing questions.

Materials integrate digital technology that provides opportunities for teachers and/or students to collaborate.

- Materials provide feedback for students based on answers to assessment questions chosen during digital assessments. For all online unit assessments, teachers provide additional information on why questions are correct or incorrect, and students can communicate additional confusion or questions with teachers for all unit assessments.
- The materials provide opportunities for teachers and/or students to collaborate. For example, the Unit 7, Activity 4 online materials include opportunities for students to type a summary of a group discussion or planning as they generate ideas to solve the engineering problem of identifying conductors and insulators to use in keeping a drink hot.
- Across the materials and within all units, materials provide the ability for teachers and students to annotate the student-facing materials. Annotations are editable and available for teachers to review and provide feedback and include the ability to highlight text in various colors. In the online Student Edition, students can type, sort, and select responses to questions found in the print version on the Studies Weekly Online platform.

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Materials integrate digital technology that is compatible with a variety of learning management systems.

- Materials integrate digital technology that is compatible with a variety of learning management systems. The *Introduction to Texas Science 2nd-5th* grade explains that the Studies Weekly Online product offers links to Google Classroom. Teachers connect Studies Weekly to Google Classroom by matching Google Classroom email addresses and Studies Weekly usernames or by importing new students from Google Classroom to Studies Weekly Online.
- The materials integrate with several different learning management systems to import rosters and set up classrooms that teachers and students can use to post lessons, administer assessments, and communicate with students. Studies Weekly Rubric Tool (3-5) Sections 6 and 9 state that Texas Science can integrate with Classlink.
- The printable files include downloadable PDF files and links to videos, which may work with other learning management systems. For example, Unit 12 includes the “TX-03-SN Unit 12: Prior Knowledge Article,” which provides information for teachers to download and utilize with their LMS, such as assigning the article for homework.

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Indicator 9.3

Digital technology and online components are developmentally and grade-level appropriate and provide support for learning.

1	Digital technology and online components are developmentally appropriate for the grade level and align with the scope and approach to science knowledge and skills progression.	Yes
2	Materials provide teacher guidance for the use of embedded technology to support and enhance student learning.	Yes
3	Materials are available to parents and caregivers to support student engagement with digital technology and online components.	Yes

Not Scored

Digital technology and online components are developmentally and grade-level appropriate and provide support for learning.

Digital technology and online components are developmentally appropriate for the grade level and align with the scope and approach to science knowledge and skills progression. Materials provide teacher guidance for the use of embedded technology to support and enhance student learning. Materials are available to parents and caregivers to support student engagement with digital technology and online components.

Evidence includes but is not limited to:

Digital technology and online components are developmentally appropriate for the grade level and align with the scope and approach to science knowledge and skills progression.

- The digital materials provide developmentally appropriate text that aligns with the grade's Lexile levels. In Unit 7, Activity 3, the "Conductors and Insulators" article level is 650L, falling within expected reading levels for the year. The digital materials provide articles that convey the needed information at a developmentally appropriate length. In Unit 7, Activity 3, the "Conductors and Insulators" article contains 419 words and five paragraphs, allowing students to complete the reading within the 45 minutes allotted for Activity 3.
- Digital technology and online components are developmentally appropriate for the grade level and align with the scope and approach to science knowledge and skills progression. For example, Unit 5, Activity 6, Conduct: Gravity and Objects, provides students with audio support. The student can choose to have the directions, questions, and articles throughout the unit.
- The digital materials are developmentally appropriate for the grade level. Digital technology and online components include easy-to-navigate functions, such as "Next Article" and "Previous Article" buttons at the bottom of the pages and breadcrumb subtitles at the top of the page. The webpage displays large print for easier reading, arrows at the bottom of the page to read on or go backward for review, a blue "Save" button to save their progress and continue later, and a green submit button to turn in their assignment.

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Materials provide teacher guidance for the use of embedded technology to support and enhance student learning.

- Materials guide teachers in the use of embedded technology to support and enhance student learning, such as training videos, webinars, and resource files. In the "Introduction to Texas Science 2nd-5th Grade" document, the online materials section describes how teachers may use the online tools and resources to enhance student learning. This section describes the various types of tools available and some ways teachers may customize the student experience, such as enabling audible content, revising questions, or adding additional response types within lesson content. For example, in the "Training and Resources," teachers may view videos about how to customize student content to edit, revise, or add to the online materials. The teacher resources provide directions for teachers to enable additional content or reorganize units to better align with the student's instructional needs.
- Materials provide teacher guidance for the use of embedded technology. For example, the product website provides 22 informational articles to guide teachers in using program technology. Articles include but are not limited to: "How Does Studies Weekly Integrate with LMS," "How to Use Google Classroom with Studies Weekly," and "How to Navigate Rostering and Integrations." Unit 5 Lesson Plan, "Student Support Resources," includes a table to show teachers where the student media supports are embedded.
- Teacher unit/weekly guidance documents recommend when to use technological components of the program with students, such as videos. For example, in Unit 11, Activity 8, students watch the *Precipitation* video before generating questions about the phenomenon with a partner. In Unit 8, Activity 3, the Lesson Guides prompt the teacher to display the "Lamp On" image to promote thinking about closed electrical currents in preparation for the student-driven inquiry part of the lesson.

Materials are available to parents and caregivers to support student engagement with digital technology and online components.

- The materials include resources available for the teacher to provide to the parents and caregivers to support student engagement with digital technology and online components. For Example, the "Tips for Caregivers to Support Online Engagement" infographic gives five tips for caregivers and students to Experience, Explore, Learn, and Review together at home.
- The materials include a teacher resource designed to help communicate with parents and caregivers about the curriculum. The resources provided are in PDF form and are intended to be printed for students to carry home or emailed. The document "Tips for Caregivers to Support Online Engagement" provides guidance for parents to review the online videos used in class and suggests questions to ask, such as, "What do you think causes this?" Parents also explore the unit activities and "TEKS Explained" articles.

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Materials provide online student access from home. For example, the “Home Learning Letter” provided for parents includes a brief reminder, in the form of a small clipart of a blackboard instructing parents to "check out your student's edition of Studies Weekly, then go online for more great content!" The materials also include a document, “Tips for Caregivers to Support Online Engagement,” which provides guidance for parents to review assessments that students have taken, connect to online unit materials to address mistakes made, and use the online feedback option to communicate questions to teachers.